

LIFE SCIENCES

including
Pharmacology Letters

VOLUME 52, 1993 AUTHOR AND SUBJECT INDEX

LIFE SCIENCES EDITORIAL POLICY

LIFE SCIENCES was founded with the intention that scientific reports would be published expeditiously, within weeks of acceptance. *LIFE SCIENCES* has adhered to its original objective by keeping abreast of current advances in communication and publication technologies to rapidly disseminate new and significant information in pharmacology.

SCOPE OF THE JOURNAL

LIFE SCIENCES is an international weekly journal publishing full length reports on research in a range of areas in the life sciences. These areas include molecular and cellular aspects of:

- Cardiovascular & Autonomic Mechanisms
- Endocrinology
- Immunology
- Toxicology
- Drug Metabolism
- Growth Factors & Neoplasia
- Neuroscience

The journal publishes original research rapidly. Although full-length manuscripts are favored, exciting new results requiring rapid dissemination in shorter form will also be considered. These shorter submissions may be considered for either *LIFE SCIENCES* or for the ultra-rapid communications section *Pharmacology Letters*.

The journal favors publication of papers on seminal areas of science utilizing modern scientific technologies and exploring molecular and/or cellular mechanisms involved in explaining reported observations. Recommendations from the Declaration of Helsinki or NIH guidelines for care and use of laboratory animals must be adhered to. All communications will be rigorously reviewed. Submitted reports will be processed by a section editor, who will administer manuscripts in one of the seven science areas listed above.



PERGAMON PRESS

New York • Oxford • Seoul • Tokyo

LIFE SCIENCES
including PHARMACOLOGY LETTERS
(ISSN 0024-3205)

Founder: B.B. Brodie - 1907-1989

EXECUTIVE EDITORS: Rubin Bressler, M.D. and S.Z. Langer, M.D.

EDITORS

David L. Kreulen, Ph.D.	Cardiovascular & Autonomic Mechanisms
Klaus Brendel, Ph.D.	Drug Metabolism
David G. Johnson, M.D.	Endocrinology
Thomas P. Davis, Ph.D.	Growth Factors & Neoplasia
Ethan M. Shevach, M.D.	Immunology
Henry I. Yamamura, Ph.D.	Neuroscience
I. Glenn Sipes, Ph.D.	Toxicology
Thomas J. Lindell, Ph.D.	Editor-at-Large

PHARMACOLOGY LETTERS

Frank Porreca, Ph.D. Robert B. Raffa, Ph.D.

Journal Production Editor: Christine Knowles Wade

Assistant Production Editor: Rosalind Siegert

Editorial Assistant: Cynthia A. Griste

Editorial Office: 655 North Alvernon, Suite 212, Tucson AZ 85711 USA

EDITORIAL ADVISORY BOARD

Julius Axelrod, <i>Bethesda, Maryland</i>	Erwin W. Gelfand, <i>Denver, Colorado</i>	Norman W. Pedigo, Jr., <i>Lexington, Kentucky</i>
Thomas A. Baillie, <i>Seattle, Washington</i>	Thomas L. Goldsworthy, <i>Research Triangle Park, North Carolina</i>	Bernard A. Peskar, <i>Bochum, Germany</i>
Barbara E. Bierer, <i>Boston, Massachusetts</i>	Michel Hamon, <i>Paris, France</i>	Ryszard Przewlocki, <i>Krakow, Poland</i>
Floyd E. Bloom, <i>La Jolla, California</i>	Robert P. Hanzlik, <i>Lawrence, Kansas</i>	Russel J. Reiter, <i>San Antonio, Texas</i>
Eric Brown, <i>St. Louis, Missouri</i>	J. Pablo Huidobro-Toro, <i>Santiago, Chile</i>	J.C. Reubi, <i>Berne, Switzerland</i>
Marvin R. Brown, <i>San Diego, California</i>	Martin Kavaliers, <i>London, Ontario, Canada</i>	William R. Roeske, <i>Tucson, Arizona</i>
Thomas F. Burks, <i>Houston, Texas</i>	Dennis R. Koop, <i>Portland, Oregon</i>	Andrew V. Schally, <i>New Orleans, Louisiana</i>
Geoffrey Burnstock, <i>London, U.K.</i>	Irwin J. Kopin, <i>Bethesda, Maryland</i>	Anton N.M. Schoffemeer, <i>Amsterdam, The Netherlands</i>
Kevin J. Catt, <i>Bethesda, Maryland</i>	Jeffrey A. Ledbetter, <i>Seattle, Washington</i>	Peter H. Seeburg, <i>Heidelberg, Germany</i>
Kwen-Jen Chang, <i>Research Triangle Park, North Carolina</i>	Pierre Lefebvre, <i>Liège, Belgium</i>	Peter F. Smith, <i>Skokie, Illinois</i>
Marlene L. Cohen, <i>Indianapolis, Indiana</i>	Robert J. Lefkowitz, <i>Durham, North Carolina</i>	Solomon H. Snyder, <i>Baltimore, Maryland</i>
Marcello Costa, <i>Adelaide, South Australia, Australia</i>	Josée E. Leysen, <i>Beerse, Belgium</i>	Ronald J. Tallarida, <i>Philadelphia, Pennsylvania</i>
Joseph T. Coyle, <i>Baltimore, Maryland</i>	John R. MacDonald, <i>Ann Arbor, Michigan</i>	Michael A. Trush, <i>Baltimore, Maryland</i>
William C. de Groat, <i>Pittsburgh, Pennsylvania</i>	Carlo A. Maggi, <i>Florence, Italy</i>	Peter A. Van Zwieten, <i>Amsterdam, The Netherlands</i>
Robert B. Dickson, <i>Washington, D.C.</i>	Joseph Meites, <i>East Lansing, Michigan</i>	John R. Vane, <i>Keston, U.K.</i>
Sam J. Enna, <i>Kansas City, Kansas</i>	Glenn Merlino, <i>Bethesda, Maryland</i>	Jeffry L. Vaught, <i>Westchester, Pennsylvania</i>
John D. Fernstrom, <i>Pittsburgh, Pennsylvania</i>	Mark J. Millan, <i>Puteaux, France</i>	David P. Westfall, <i>Reno, Nevada</i>
Roderick J. Flower, <i>London, U.K.</i>	Terrence J. Monks, <i>Austin, Texas</i>	
John R. Fozard, <i>Basel, Switzerland</i>	Terry W. Moody, <i>Washington, D.C.</i>	
Bertil Fredholm, <i>Stockholm, Sweden</i>	Charles B. Nemeroff, <i>Atlanta, Georgia</i>	
	Gavril W. Pasternak, <i>New York, New York</i>	

Production Editor: Lorraine Petrella, Pergamon Press, Tarrytown, New York.

Publishing, Subscription and Advertising Offices: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA, INTERNET "PPI@PERGAMON.COM" and Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England.

Published Weekly (2 volumes of 26 issues each per annum): *Annual institutional subscription rate*(1993): £1218.00 (US\$1949.00); Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice.

AUTHOR INDEX

- Abou-Samra, Abdul-badi 621
Abraham, E.C. 1699
Abramovici, Mirel 1891
Acs, Zsuzsanna 1417, 1733
Adachi, Mitsuru PL-25
Adachi, Yukihiko 777
Adams, Michael L. PL-245
Ades, J. PL-7
Adler, G. 135
Adler, Martin W. 95, PL-43
Adzet, T. 213
Agarwal, Dianne PL-193
Aihara, Masaki PL-291
Aishita, Hideki 1257, PL-97
Akira, S. 61
Alattar, Maha 1091
Alegret, M. 213
Aleman, Pilar 1947
Alexiou, C. 725
Alho, Hannu 1265
Aloisi, A.M. 323
Alvares, Alvito P. 163
Alvares, K. 1709
Amaladevi, Bellamakonda 751
Amico, Janet A. 1301
Anderson, G.P. 2145
Anderson, George M. 2005
Anderson, Kevin J. 863
Ando, Kazumasa PL-291
Andres, Alexander H. 313
Arahetes, Rosa Maria 1609
Arai, Yuichiro 289
Aramaki, Tadayuki 901
Arancibia, S. 353
Arban, Roberto PL-85
Arilla, E. 803
Armario, A. 361, 1187
Armeanu, M.C. 1311
Arora, Ramesh C. 1767, 2005
Arpasi, Paul 2063
Asano, Kazuhito PL-25
Avery, L.M. 259
Azad, Deepak 751
Baba, Nobuyuki 669
Bagchi, Kabita 1493
Bai, Jane P.F. 941
Baker, Raymond 489
Ballieux, Rudy E. 1825
Banay-Schwartz, M. 877
Bar-Sever, Zvi 371
Bar-Sinai, A. 2093
Baraona, Enrique 1249
Barna, Istvan 1417
Barnes, Peter J. 521, 1633
Barrio, Emilio PL-13, PL-217
Baulieu, J.-L. 1851
Baumhaker, Y. PL-205
Beaver, Teresa A. 1079
Bechtel, W.D. 497
Beckman, Alexander L. 1079, 1535
Belenky, S. 709
Bell, Jeffrey 95
Belloc, Claire PL-91
Belmar, Jorge 811
Benaksas, Elaine J. 1045
Benard, J.Y. 989
Benschop, Robert J. 1825
Benson, R.W. 183
Benuck, M. 877
Benyassi, A. 361
Benyhe, Sandor 599
Berglund, Lee Ann 1443
Berkovich, Alla 1265
Berkow, Roger L. 1727
Berlingieri, M.T. 891
Bernas, M. 663
Berry-Kravis, Elizabeth M. 2005
Berstein, Gabriel 413
Besnard, J.-C. 1851
Bettendorf, A.F. 1425
Bhagwat, Shripad V. 1601
Bhamre, Shubhada 1601
Bianchi, C. Paul 1225
Bianchi, Graziella 1265
Bigornia, Annette E. 1045
Bilsky, Edward J. PL-67
Bing, R.J. 1397
Birdsall, N.J.M. 449
Blandini, F. 1995
Blanckesteijn, W. Matthijs PL-135

- Blumberg, Peter M. PL-221
Boddeke, Hendricus 513
Bode, Willem T. 2045
Bolden-Watson, C. 1023
Borges, Durval Rosa 1451
Bornstein, S.R. 135
Bouaboula, Monsif 107
Bradley, Edwin L., Jr. PL-55
Bradley-Dunlop, D. 663
Branch, Carrie A. 85
Brann, Mark R. 405
Braquet, Pierre 1883
Briski, Karen P. 1977
Bronson, Maureen E. PL-129
Brosnihan, K. Bridget 1461
Brown, Keith PL-175
Brown, Pamela T. PL-55
Brubacher, Elaine S. 1045
Bruguerolle, Bernard 1809, PL-165
Bureau, Yves R.J. 869
Burhol, Per G. 141
Burke, Robert E. 1577
Burns, Kevin D. 1091
Bussiere, Jeanine L. PL-43
Butchers, P.R. 2131
Butler, Jean DeBrohun 1209
Butterfield, D. Allan 289
Byrd, J.A. 1195
Cachero, Teresa G. 965
Cahard, Dominique 107
Cahill, Michael 389
Caldwell, J.D. 1781
Callahan, Phyllis 271
Camara, Miguel 1947
Cameron, Judy L. 1301
Campana, G. 223
Canat, Xavier 107
Canossa, M. 223
Capasso, Anna 835
Carayon, Pierre 107
Carlson, Kristin R. PL-199
Carrillo, M.C. 281, 1925
Casellas, Pierre 107
Casis, L. 1629
Castro, A. 1585
Cavaletti, Guido 1265
Chabrier, Pierre-Etienne 1883
Chakraborty, A. 1695
Chakraborty, A.K. 1695
Chakraborty, D.P. 1695
Chakraborty, Joana 2063
Challis, John R.G. 1985
Chalon, S. 1851
Chang, H.M. PL-239
Chang, Hui-min 1797
Chang, Ki Churl PL-37
Chanut, E. PL-187
Chapouthier, G. 639
Charak, David A. 2005
Chaudhuri, A.K. Nag 737
Chauvelot-Moachon, L. 1917
Chen, Anthony B. 1055
Chen, Guan-Jie 1319, 1641
Chen, Jin-Chung 389, PL-199
Chen, Y.L. 1917
Cherian, M. 1699
Chetty, Kothapa N. PL-175
Chiang, Shou-Teh 205
Chieli, Elisabetta 631
Cho, Kyung Woo 1351
Chong, Won Seog PL-37
Christophe, Jean 481
Chu, Hsin 883
Cicero, Theodore J. PL-245
Claing, A. 1141
Clark, T.J.H. 2193
Classen, M. 725
Clozel, Martine 825
Cohen, Adi 35
Cohen, Robert 389
Coleman, R.A. 2131
Collins, Keith A. PL-211
Collins, S. 2083
Compagnon, P. 898
Conforto, A. 1397
Conte, Bruno PL-221
Cook, C. Edgar 155
Cook, Edwin H., Jr. 2005
Costa, A. 1995
Costa, Erminio 1265
Cotton, Stephen J. 1407
Couceiro, J. PL-73
Cox, Brian M. PL-141
Coy, D.H. 725
Crayton, John W. 1767
Creason, Sharon A. 429
Cummings, Audrey M. 347
Cutrin, Carlos PL-13, PL-217
Cuttitta, Frank 1161
D'Andrea, G. 1995

- D'Aniello, Antimo 733
D'Orleans-Juste, P. 1141, PL-103
D'Sylva, Sandra 1121
Dailey, J.W. 1435
Daoust, M. 989
Das, Kaberi P. 1493
Das, Parikshit C. 1493
Daveloose, D. PL-7
Davis, R.E. 505
Davis, Robert E. 465
Dawson, Gerard R. 489
Dayer, P. 29
De Carolis, A. Scotti 1546, 2055
de Gandarias, J.M. 1629
De Graan, P.N.E. 1013
De Koning, H.P. 1969
de Koning, J. 1311
De Nicola, Alejandro F. 677
De Sousa, M. 1917
de Toledo, Carlos Fischer 1451
De Vries, Taco J. 1685
Dean, C.E. 1195
Decker, Robert 1875
Degli, Uberti E.C. 323
Dehkordi, Ozra 1387
Demerle-Pallardy, Caroline 1883
Demura, Hiroshi 1381
Dennis, Gary C. 1387
Dent, Gordon 1633
Deprez, Paule 2017
Deth, Richard C. 1899
Devynck, M.-A. 1559
DeWind, Sally A. 1045
Dey, Chandi D. 1493
Dianna, G. 1547
Diaz, Felipe 811
Dinari, Gabriel 371
Disse, Bernd 537
Dodson, Robert W. 1727
Dognon, A.-M. 1851
Doods, H.N. 473, 497
Dooley, Colette T. 1509
Dreisbach, Albert W. 1875
Dubech, N. 1499
Duivenvoorden, Hugo J. 1825
Dworkin, Steven I. PL-1
Dzurba, Andrej 1175
Eaton, Robert C. 935
Eberlein, W. 497
Ebihara, Akio 819
Echevarria, E. 1629
Ehrhart-Bornstein, M. 135
Eisenstein, Toby K. PL-43
Ellis, John 405
Engel, W. 497
Enriquez, J. 663
Ensinger, H.A. 473, 497
Entrikin, Richard K. 1149
Entzeroth, M. 497
Entzian, Wolfgang 313
Enz, Albert 513
Epple, August PL-117
Erdrugger, Wilhelm 1835
Ernouf, D. 989
Fabris, R. 657
Facchiano, Antonio 1209
Fadda, Emanuela PL-85
Fail, Patricia A. 155
Farries, T. 449
Faudon, Maxime 2017
Favari, Liliana 647
Federspil, G. 657
Fei, David T.W. 1055
Fekkes, Durk 2045
Ferguson, Graham P. 733
Fernandez, A.G. 1361
Fernandez, E. 1361
Fernandez-Rial, J.C. PL-73
Fernstrom, John D. 907
Fernstrom, Madelyn H. 907
Ferrarese, Carlo 1265
Ferrario, Carlos M. 1461
Ferri, S. 223
Ferrini, Monica 677
Feth, Friedhelm 1835
Fiala, M. 663
Filep, Janos G. 119
Finkel, Mitchell S. 1109
Firlej, Alina 1071
Fishman, Jordan B. 389, PL-199
Flamigni, C. 223
Floreani, A.A. 709
Florentin, I. 1917
Florijn, W.J. 1013
Florio, Chiara 1677
Fogarty, Kenneth W., II 1487
Foley, Timothy D. PL-273
Fontani, G. 323
Forray, Maria Ines 811
Foulkes, E.C. 1617

- Fournier, Alain 857
Fraley, Gregory S. 1649
Francois-Bellan, Anne Marie 2017
Frangin, Y. 1851
Frank, G. 223
Franklin, Steven O. 1577
Freedman, Stephen B. 489
Freire-Garabal, M. PL-73
French, Rodney J. 339
Friedman, C.I. 61
Friedman, Herman 41
Frossard, Nelly 613
Fryer, Allison D. 521
Fujii, Toru 975, 1181
Fujimura, Akio 819
Fujinami, Takao 975, 1181
Fujitani, Buichi 1257
Fujiwara, Motohatsu 377
Fujiwara, Yutaka 949
Fukuroda, Takahiro 717
Fuller, D.J.M. 1101
Fullerton, Floyd R. 1669
Funada, Masahiko 397
Fung, K.P. PL-239
Fusco, A. 891
Gaetani, Paolo PL-61
Ganbo, Tetsuya PL-227
Gao, Y. 2123
Garces, Yolanda I. 353
Garcia-Olivares, Enrique 1947
Garcia-Tortosa, Carmen 1947
Garcia-Villar, R. 1499
Gardier, A.M. PL-187
Garzon, Javier PL-123
Gavalda, A. 361, 1187
Gensler, H.L. 1101
Gerner, E.W. 1101
Gerrish, K.E. 1101
G-Granda, Teresa 965
Ghosh, T.K. 737
Giannuario, Amalia Di 835
Giebel, Rita 1045
Gil, M. 1187
Giraldo, Ettore PL-61
Giralt, M. 1187
Giroud, J.P. 1917
Gispen, W.H. 1013
Giustina, Andrea 981
Glaccum, Matthew B. PL-67
Glasel, Jay A. PL-193
Goldman, Mark E. 243
Goldman, Phyllis S. 429
Goldstein, M.N. PL-205
Gomez-Fernandez D.E. PL-73
Gomi, Fujiya 2027
Gonalons, E. 191, 1361
Gonzales, E. 1005
Gonzalez, Maria Isabel 1609
Gonzalez, Susana 677
Goso, Cristina PL-221
Gossman, G.L. 709
Goverde, H.J.M. 959
Graettinger, W.F. 1005
Green, Carla B. 1055
Greenstein, Jeffrey I. 95
Grieco, M. 891
Grimaldi, M. 891
Grimm, Ulrike 481
Grob, David 751
Grosvenor, C.E. 259
Gu, Xiao-Hong 687
Guidotti, Alessandro 1265
Guilloteau, D. 1851
Gulati, Anil 1767
Guth, Paul H. 1621
Gysin, B. 845
Habecker, Beth A. 429
Haberman, Frank PL-255
Haga, Kazuko 421
Haga, Tatsuya 421
Halaszi, Eva PL-19
Haleem, Darakhshan J. PL-279
Hamada, Akira 2027
Hamada, Kaori 1869
Hamagishi, Yasutaro 949
Hamasaki, Keisuke 1135
Hamdi, Anwar 251
Hamel, F.G. 709
Hammer, Rudolf 473, 537
Han, J.S. 1519, 1955
Hanchett-Valentine, Helene 433
Hansen, Deborah K. 1669
Hargis, B.M. 1195
Hargreaves, Richard J. 489
Harris, Raymond C. 1091
Harris, Robert B. 147
Hashimoto, Shinji 1741
Hayakawa, Fuminori 975, 1181
Hayes, R.A. 61
Hayes, T.K. 1195

- Hechter, O. 1709
Heckelman, Bruria 371
Heinlein, Uwe A.O. 917
Hens, J.J.H. 1013
Hermann, Ulrike 481
Hery, Francis 2017
Hery, Micheline 2017
Herzlich, Barry 751
Hexum, Terry D. PL-285
Hidalgo, Patricia 811
Hikiji, Mitsuru 949
Hildebrandt, Caren 481
Hisamatsu, Ken-ichi PL-227
Hitosugi, Hideki PL-31, PL-169
Hiyoshi, Yasuo PL-107
Ho, John W. 21
Holst, J.J. 135
Homma, Toshio 1091
Hon, P.M. PL-239
Hong, Ki Whan 1527
Horak, Pavel PL-117, PL-255
Horisaka, Kazuyoshi 1845
Houghten, Richard A. 1509
Hruby, Victor J. 845
Huang, Dennis S. 1319, 1641
Hubbell, Christopher L. PL-67
Huerta, Ismael 965
Hui, Eric Ka-Wai 2035
Hull, Elaine M. 935
Hull, Keith M. 1287
Hunt, R.H. PL-49
Hwang, Yun Ha 1351
Hwu, Chii-Min 205
Ide, H. 1709
Iguchi, Akihisa PL-107
Ikeda, Ikuo 1371
Ikemoto, Fumihiko 717
Imaizumi, Katsumi 1371
Imasato, Youji 1371
Immel-Sehr, A.R. 473
Imokawa, Hideki PL-291
Inoki, Reizo 901
Inoue, Hajime PL-227, PL-291
Inturrisi, Charles E. 1577
Ip, Margot M. 1977
Irazusta, J. 1629
Ishida, Hirotomo PL-227, PL-291
Ishida, Hitoshi 687
Ishida, Osamu 305
Ishikawa, Kiyofumi 717
Ishima, Tsuyoshi 1935
Ishimitsu, Toshihiko 1425
Isono, Emiko PL-291
Ito, Junko 975, 1181
Itoyama, Yasuto 9
Iverson, Leslie L. 489
Ivy, G.O. 281, 1925
Iwai, T. 1031
Iwasaki, Tsuneo 1935
Izenwasser, Sari PL-141
Jabaa, Lea 1825
Jacoby, David B. 521
Jacoby, Henry I. PL-233
Jacquot, C. PL-187
Jacquot, F. 639
Jaen, Juan C. 465
Janik, James 271
Janowski, Bethany A. 981
Jansen, J.B.M.J. 1861
Jenden, Donald J. 545
Jenks, B.G. 1969
Jimenez, M. 191
Jino, Hiroshi 377
Jobe, P.C. 1435
Johansen, Oddmund 141
Johnson, David G. 845
Johnson, M. 2131
Jones, Peter J.H. 339
Jones, Stephanie B. 1577
Jones, S.V.P.
Joo, Jung Il PL-37
Jorde, Rolf 141
Jukic, D. 1141, PL-103
Juurlink, Bernhard H.J. 1087
Kacsoh, B. 259
Kahle, E.H. 1435
Kalicki, Joelle M. PL-245
Kamei, Junzo 53, PL-31
Kamei, Junzo PL-169
Kameyama, Kimihiko 421
Kamiya, Yoshinobu 975, 1181, 1381
Kanai, S. 281, 1925
Kangawa, Kenji PL-153
Kano, Masatoshi 13
Karpinski, Edward 793
Kasahara, Ken-ichi 1741
Kashihara, Kenichi 949
Kashima, Kouji 1481
Kasuya, Yutaka 53, PL-31, PL-169
Kato, Seika 687

- Kato, Yuji 1135
Kawaguchi, Masanobu 975, 1181
Kawashima, Naoya 53
Kerrebijn, K.F. 2181
Khan, Khaleque Newaz 1135
Kim, Chi Yeon PL-37
Kim, H.D. 1567
Kim, M.H. 61
Kim, Suhn Hee 1351
Kimball, Edward S. 1
Kimura, Ikuko 1845
Kimura, Kiyoshi 1935
Kinemuchi, Hiroyasu 289
King, David B. 1149
Kino, Isamu 1909
Kirkendall, Kenan PL-111
Kirschbaum, Clemens 1825
Kisara, Kensuke 289
Kissin, Igor PL-55
Kitagaki, Kunihiro PL-147
Kitani, K. 281, 1925
Kitano, Motokazu 777
Klimkowski, V.J. 405
Knowles, B. Jack 1669
Knuepfer, Mark M. 85
Kobayashi, Hiroaki 777
Koda, Akihide PL-147
Koenig, James I. 1417
Koh, Gou Young 1351
Kojima, Masayasu PL-153
Kojima, Y. 745
Kolb, V.M. 1311
Konno, Shin-ichi PL-25
Korneyev, A.Y. 997
Kruszynska, Yolanta T. 1407
Kuan, Chia-Jen 883
Kubota, Takako PL-291
Kuenzel, Wayne J. 1649
Kuhn, F.J. 473
Kuijpers, I.J. 1861
Kumagai, Hidetoshi 1595
Kumazawa, Takeshi 1909
Kunes, J. 1559
Kurahashi, Kazuyoshi 377
Kurose, Takeshi 687
Kuta, C. 701
Kuzmin, A.V. PL-261
Kwok, Simon C.M. 1055
Kwon, Bok Hee PL-37
Kwon, Yung Jae 1527
Ladinsky, H. 497
Laguna, J.C. 213
Laird, Hugh E., II 1329
Lajtha, A. 877
Lambrecht, Gunter 473, 481
Lamers, C.B.H.W. 1861
Lau, Benjamin H.S. 1787
Lau, Chin-Pang 205
Lauffer, D.J. 505
Layden, Lisa M. 1301
Lazareno, S. 449
Le Fur, Gerard 107
Le Vraux, V. 1917
Leakey, J.E.A. 183
Lee, C.M. PL-239
Lee, David K.H. PL-233
Lee, In Jae PL-37
Lee, Won Suk 1527
Lee, Yue-Wei 155
Leemann, T. 29
Leenders, H.J. 1969
Lefkowitz, D.L. 1585
Lefkowitz, S.S. 1585
Lejoyeux M. PL-7
Lemaire, Lydia 917
Lemmer, Bjorn 1809
Leret, Maria Luisa 1609
Leventhal, Bennett L. 2005
Levey, Allan I. 44i
Levin, Sondra Warren 1209
Levitzki, A. 2093
Lewis, Felicia A. 1079
Lewis, Michael J. PL-1
Lhermitte, Michel PL-91
Li, Lin 1787
Li, Wan-I 73
Li, Y. 725
Liang, Jing-Sheng 433
Liao, Wei-chen 1797
Libersa, Christian PL-91
Lichtensteiger, W. 927
Lieber, Charles S. 1249
Lin, Y.C. 61
Ling, Nicholas C. 981
Linnoila, Markku PL-273
Lipartiti, Maria PL-85
Liu, Dan 1225
Liu, Jin-Hong 1217
Liu, Wei 1249
Liu-Chen, Lee-Yuan 95

- Livingston, Edward H. 1621
Lockhart, Alain 613
Loizzo, Alberto 835
Lombardi, AM. 657
Lonchamp, Marie-Odile 1883
Lopez-Calderon, A. 1187
Lopez-Sanudo, S. 803
Lorec, Anne Marie PL-165
Lorrain, Daniel 935
Lothion, P. 989
Lung, Chiencheng 329
Lunte, Craig E. 1239
Lunte, Susan M. 1239
Ma, Xiao-Li 1249
Macor, C. 657
Madaus, S. 725
Maeda, Sadaaki 901
Maesaka, John K. 1875
Maher, Timothy J. 1287
Makara, G.B. 1733
Malabu, Usman H. 1407
Malave, A. 695
Manev, Hari PL-85
Mantsev, V.V. PL-261
Manzini, Stefano PL-221
Marback, I. 2093
Marcus, Hedva 371
Marin, Bernardo 965
Marti, J. 1187
Marti, O. 1187
Martin, M.T. 1361
Martinez, V. 191
Martingnoni, E. 1995
Martinolle, J.P. 1499
Marumo, Fumiaki 1217
Maruno, Kaname PL-267
Marzorati, Claudia 1265
Mason, G.A. 1781
Masson, I. 1917
Masuda, Kazuhiro 687
Mathew, Roy J. 757
Mathiasen, Joanne R. 1
Matsuda, Yuzuru PL-153
Matsumoto, Ryoji 1257
Matsuo, Hisayuki PL-153
Matsuo, Mitsuyoshi 2027
Mattana, Joseph 1891
Matthew, Candace B. 1343
Max, Steven I. 433
Mazarati, Andrey M. Pl-19
Maziere, J.C. PL-7
Meinke, Geraldine C. 329
Melzi D'eril, G.V. 1995
Mendelbaum, K. 231
Mendla, K.D. 473, 497
Mendlewicz, J. 231
Menendez, Emilia 965
Menino, Maria J. PL-13, PL-217
Mergl, Zsuzsanna 1733
Merlos, M. 213
Meucci, O. 891
Meyer, Edward R. PL-235
Michel, Martin C. 1835
Miele, Lucio 1209
Migeon, Jacques C. 429
Mihm, G. 497
Millard, William J. 1443
Miller, K. 61
Millis, Richard M. 1387
Minamino, Naoto PL-153
Minshall, Richard D. 353
Mirzadegan, T. 505
Misawa, Miwa 397, PL-169
Mishra, P.K. 1435
Mitsuoka, Satoru 1135
Miyamoto, Kaoru PL-153
Miyamoto, Y. 1039, 1129
Miyata, Noriyuki PL-181
Mohankumar, P.S. 1961
Monferini, Eugenia PL-61
Montes, Maria Jose 1947
Moody, David E. 21
Moody, Terry W. 1161
Moolten, Marjorie S. PL-199
Mooradian, Arshag D. 329
Moos, W.H. 505
More, J. 1499
Moreland, D.W. 505
Mori, Masatomo 1481
Morikawa, Keiko 1805
Morishita, Yoshikazu PL-153
Morrison, K.J. 2123
Moser, Ulrich 481
Moses, Jason 935
Mukherjee, Anil B. 1209
Mulay, Shree 1121
Mulder, Arie H. 1685
Muller, M.J. PL-49
Muller, R.E. 473
Munoz-Acedo, G. 803

- Murakami, Hitomi 1381
Muramatsu, Makoto PL-181
Muriel, Pablo 647
Murray, E. David, Jr. 1045
Muto, Norio 13
Mutschler, Ernst 473, 481
Nagai, Hiroichi PL-147
Nagao, Hiroshi 1371
Nagase, Hiroshi 397, PL-169
Nagashima, Hajime 1595
Nagataki, Shigenobu 1135
Nagatani, Tadashi 1741
Naito, Yasuhisa 1909
Naka, Masao 1257
Nakagawa, Naoki PL-97
Nakagawa, Yutaka 1935
Nakahata, Norimichi 289
Nakamura, Toshikazu 1091
Nakano, Akinobu 1805
Nakano, Yasunobu 41
Nakata, Hiroko 421
Nakata, Keisuki 1135
Namba, Tatsuji 751
Nambi, Ponnal 35
Nappi, G. 1995
Narcisse, G. 898
Nardi, Giovanna 733
Narita, Minoru 397
Nathanson, Neil M. 429
Navarro, Isabel PL-117
Nelson, K.J. 709
Neutel, J.M. 1005
Newman, J. Robert 1535
Nhamburo, Patson 1487
Nials, A.T. 2131
Nicolau, M. 1141
Nieberg, Pamela S. 1279
Nijkamp, F.P. 2073
Nirei, Hisataka 1869
Nishigori, Hideo 305
Nishikibe, Masaru 717
Niwa, M. 1031
Nokubo, M. 1925
Nonogaki, Katsunori PL-107
Notsu, Yoshitada 1869
Nozaki, M. 1031
Nunez, M.J. PL-73
Obata, Takaaki PL-97
O'Brien, Julie A. 243
Oddis, Carmine V. 1109
Ogawa, Yoshiichi 1425
Ogihara-Umeda, Izumi 305
Ohashi, Kyo-ichi 819
Ohizumi, Yasushi 289
Ohlstein, Eliot H. 35
Ohmura, Eiji 1381
Ohnishi, Tetsuo 901
Ohnuki, Tetsuo 949
Ohta, M. 281
Ohyama, Yoshio PL-153
Okada, Megumu 717
Okada, Yutaka PL-97
Okamoto, Ken-ichi PL-25
Oki, Toshikazu 949
Okuyama, Shigeru PL-181
Okuyama, Yoshifumi 777
Omawari, Nagashige 1257
Omura, Satoshi 1595
Ono, Takaharu 1869
Ooi, Yashuhiro 901
Oostveen, Frank G. 1825
Oseko, Fumimaro 1805
Oshima, Yoshiteru 289
Ostovic, Drazen 243
Ostrowitzki, Susanne 313
Otomo, Susumu PL-181
Otsuki, Saburo 949
Oyanagui, Yoshihiko PL-159
Ozawa, Kuniaki PL-107
Pagala, Murali 751
Pagala, Sobhan 751
Pagano, C. 657
Pages, N. PL-187
Pang, Peter K.T. 793
Paolicchi, Aldo 631
Paradisi, R. 223
Parafita, Manuel A. PL-13
Parenteau, Lise A. 429
Parenti, Marco PL-61
Park, Chung Ung 1351
Parmar, R. 927
Parola, Anthony L. 1329
Pauwels, R. 2171
Pavia, M.R. 505
Pedersen, C.A. 1781
Pellevoisin, C. 1851
Pena-Martinez, Yolanda PL-123
Perez-Becerra, Eugenio PL-217
Persinger, M.A. 869
Persson, C.G.A. 2111

- Pesman, G.J. 959
Pessah, Isaac N. 1279
Petrow, Vladimir 155
Pezeshk, Abbas 1071
Pezeshk, Vida 1071
Pezzola, A. 1547, 2055
Pfaff, Otmar 481
Pham, Tim 1045
Piccione, Joanne M. 1875
Pieretti, Stefano 835
Pietraszek, M.H. 745
Pinna, Jacob L. 329
Pitts, Raymond C. PL-1
Plourde, Victor 857
Poaty, Virginie 613
Poirier, Lionel A. 1669
Pomerantz, Steven M. 1301
Ponten, S.P. 1969
Popoli, P. 1547, 2055
Porreca, Frank PL-67
Portaluppi, F. 323
Portoghese, Philip S. 769, PL-67, PL-211
Potter, Lincoln T. 433
Prasad, Chandan 251
Prior, T. PL-49
Pross, Susan 41
Pu, Hsiao-Fung 205
Puckett-Vaughn, DeAnna L. 1239
Pullen, Mark 35
Purkerson, Sherry L. 433
Quadri, S.K. 1961
Quirion, R. 497
Rabii, Jamshid 271
Rabito, Sara F. 353
Raffa, Robert B. 1
Ragland, A. 663
Rangachari, Anuradha 297
Rangachari, P.K. PL-49
Rangaraju, N.S. 147
Rao, M.S. 1709
Rao, Marie Luise 313
Rascher, Wolfgang 1835
Ravindranath, Vijayalakshmi 1601
Reddy, J.K. 1709
Regoli, D. 1141, PL-103
Reichl, Richard 537
Reid, Larry D. PL-67
Reikeras, Olav 141
Reimann, Wolfgang PL-251
Reiter, Russel J. 1231
Ren, M.F. 1519, 1955
Rey-Mendez, M. PL-73
Rhim, Byung Yong 1527
Richardson, Bruce A. 1231
Richelson, E. 1023
Rink, Timothy J. 1717
Rizzi, Carlo A. PL-61
Robbins, R.A. 709
Roberts, D.W. 183
Roby, Katherine F. 1055
Rodgers, Cynthia L. 1045
Rodgers, Pamela A. PL-79
Rodriguez, Lynn M. 1535
Rodriguez y Baena, Riccardo PL-61
Roeske, William R. 949
Rogers, Thomas J. PL-43
Romeo, Ryan C. 1109
Rominger, Ludwig Karl 537
Roque, Claude 107
Rosati, Anna Maria 1677
Rosenberger, John G. PL-141
Ross, Elliott M. 413
Roubos, E.W. 1969
Rouissi, N. 1141, PL-103
Rubinstein, I. 709
Rudin, Markus 513
Rudolf, K. 497
Ruffing, Thomas L. 243
Rugiu, Eric Santoni 631
Ruiz, Concepcion 1947
Russo, Albert C. 1535
Sabeur, Khalida 1149
Sagen, Jacqueline 353
Sagrada, A. 473
Sagratella, S. 1547
Said, Sami I. PL-267
Saini, Abha 1751, 1759
Saito, Kihachi 901
Sakakibara, K. 745
Sakamoto, Nobuo PL-107
Sakuma, Nagahiko 975, 1181, 1381
Salvadori, S. 323
Sances, G. 1995
Sanchez, R.M. 213
Sanderson, William D. 1287
Sandler, Daniel L. 863
Sang, K.H. Le Quan 1559
Sano, Masatoshi 1063
Santoro, M. 891
Saperas, Esteban 785

- Sara, S. 639
Sarne, Y. PL-205
Sasaki, Eiji 1371
Sato, Chifumi 1217
Sato, Noriyuki 1481
Sato, Sachio PL-159
Sato, Y. 281, 1925
Sauermelch, Charles F. 35
Sauter, Andre 513
Sautter, Jurgen PL-85
Save, E. 639
Savoini, Gianni PL-85
Schepp, W. 725
Scherbaum, W.A. 135
Schettini, G. 891
Schiavi, G.B. 497
Schlumpf, M. 927
Schneider, Frank PL-251
Schoemaker, J. 1311
Schoffemeer, Anton N.M. 1685
Schorn, Terry W. 243
Schrater, Paul R. 1525
Schusdziarra, V. 725
Schwarz, Roy D. 505, 465
Scorziello, A. 891
Scott, Dennis O. 1239
Sei, Yoshitatsu 1751, 1759
Seino, Yutaka 687
Sen, T. 737
Seredenin, S.B. 997
Serizawa, K. 745
Seul, Kyung Hwan 1351
Sevy, S. 231
Shamir, Raanan 371
Shankar, Susarla K. 1601
Shapiro, Gideon 513
Shen, Li 1109
Shi, C.Z. 1657
Shiga, Tsuyoshi 819
Shimamoto, Koji 717
Shimizu, Hiroyuki 1481
Shimomura, Yohnosuke 1481
Shimoyama, I. 745
Shinno, Etsuki 901
Shirahase, Hiroaki 377
Shire, David 107
Shizume, Kazuo 1381
Shoubo, Miwako 1869
Shouji, Mika 777
Shun, X.J. 1519
Siegl, Peter K.S. 243
Silberberg, Hannah A. 433
Siliprandi, Renata PL-85
Simon, Jozsef 599
Simpkins, Cuthbert O. 1487
Simpkins, James W. 1443
Singhal, Pravin C. 1891
Sklens, Paul J. 2005
Smals, A.G.H. 959
Smith, D.H.G. 1005
Smith, Emil R. 389
Smith, Steven J. 243
Snawder, J.E. 183
Soares, Michael J. 1055
Sofuoglu, Mehmet 769
Sogabe, Keizo 1869
Sohn, Dong-Ryul PL-37
Sora, Ichiro 949
Sorrentino, Ludovico 835
Soto, Claudia 647
Spampinato, S. 223
Speck, Georg 537
Spector, Sydney PL-117, PL-255
Spencer, Carolyn J. 465
St. Pierre, Serge 857
Stanton, Toni L. 1535
StC. Sinclair, Nicholas R. 1985
Steffler, Catherine PL-233
Stenken, Julie A. 1239
Stevens, Craig W. PL-111
Stevenson, David K. PL-79
Strauss, William L. 433
Stromeyer, H.G. 135
Strong, P. 2131
Suarez, J.A. PL-73
Subarnas, Anas 289
Subbarao, V. 1709
Subczynski, Witold K. 1071
Sudoh, Toshiaki 819
Sugano, Michihiro 1371
Sugimoto, Tokuichiro 1425
Sugimoto, Yumi 1845
Sullivan, John T. 1295
Sumner, M.J. 2131
Sun, A.Y. 1567
Sun, G.Y. 1567
Suzuki, Katsushi 669
Suzuki, Osamu 1909
Suzuki, Tsutomu 397
Svegliati-Baroni, Gianluca 1249

- Sylvester, Paul W. 1977
Szalay, K. Sz. 1777
Szallasi, Arpad PL-221
Tache, Yvette 785, 857
Tachibana, Katsuyasu 1641
Tadano, Takeshi 289
Takada, A. 745
Takada, Y. 745
Takahashi, Terumi PL-25
Takano, Takehito 1217
Takao, Katsuyuki 1741
Takemori, A.E. 769, 1039, 1129
Takenaka, Shigeyuki 9
Takeuchi, Naoko 1845
Tamagawa, Tatsuo PL-107
Tanaka, Eiji 669
Tanaka, Makoto PL-181
Taniguchi, Ataru 1805
Tanira, Musbah O.M. 199
Tasaki, Koichi 1135
Tattersfield, A.E. 2161
Tavakoli, Reza 613
Tecle, Haile 465, 505
Telegdy, Gyula PL-19
Terawaki, Tamiya PL-97
Thien, Theo PL-135
Thomas, Anthony J. 465
Tian, Wang-ni 1899
Tietje, Kathleen M. 429
Tjon Tien Ril, Guno H.K. 1685
Tojo, Katsuyoshi 621
Tomita, Hiroaki 949
Tomko, Karen A. PL-233
Tomoda, Hiroshi 1595
Tongiani, Roberto 631
Tonnesen, Tor 141
Toshida, Kazuo 669
Toth, B.E. 259
Toth, Gabor PL-19
Transon, C. 29
Traunecker, Werner 537
Traversa, Ugo 1677
Trivedi, D. 845
Trivier, Jean-Marc PL-91
Trough, C. Ovid 1387
Trouvin, J.H. PL-187
Tsai, S.S. 1567
Tsai, Shiow-Chwen 205
Tseng, Ching-Jiunn 883
Tseng, Leon F. PL-211
Tsuchida, Katsuharu PL-181
Tsuchida, Sonoko 717
Tsuda, Kinsuke 687
Tsukada, Hiroki 1425
Tsurumi, K. 1031
Tsuruoka, Nobuo PL-147
Tsuruta, Shohtaro 1135
Tsushima, Toshio 1381
Tung, Che-Se 883
Turman, John 1387
Tveita, Torkel 141
Tzeng, Woan Fang 2035
Uehara, Yutaka 1481
Uemura, K. 745
Ueng, Tzuu-Huei 163
Urano, T. 745
Usui, Hachiro 377
Utsumi, Hideo 2027
Vallier, Heather A. PL-79
Van De Brug, F.J. 1861
Van Der Laan, Jan Willem 1685
Van Dieten, J.A.M.J. 1311
Van Koppen, Chris J. 429
Vanhoutte, P.M. 2123
Vardey, C.J. 2131
Varga, Janos PL-19
Vargas, M. Luisa 1947
Varma, D.R. 1121
Vaught, Jeffry L. 1
Vaziri, N.D. 1005
Vazquez, M. 213
Velasco, Ana 965
Venault, P. 639
Venkatesan, Jeyanti 1875
Verberne, A.A.P.H. 2181
Vergara, P. 191
Vergnani, L. 323
Versteeg, D.H.G. 1013
Vertua, Rodolfo 1677
Vetere, Amedeo 733
Vettor, R. 657
Vieira, Paul PL-13
Vinals, M. 213
Vingerhoets, Ad J.J.M. 1825
Viret, J. PL-7
Vislobokov, A.I. PL-261
Voglino, N. 323
Vrbjar, Norbert 1175
Vu, Ann L. 1055
Waelbroeck, Magali 481

- Walker, C.H. 1781
Walker, Joan PL-175
Walther, G. 473
Wang, J.F. 1519, 1955
Wang, Ming-Wei 1717
Wang, Paulus 205
Wang, Rui 793
Wang, Tzouh-Liang 205
Wani, Mansukh C. 155
Wasfi, Ibrahim A. 199
Watanabe, Genichi PL-107
Watanabe, Hiroshi 825
Watanabe, Yoshiko 1845
Watson, Ronald Ross 1319, 1641
Watzl, Bernhard 1319
Waugh, William H. 171
Way, D. 663
Weber, M.A. 1005
Wechter, William J. 1045
Wehlan, C.J. 2131
Wehrenberg, William B. 981
Wei, Jeng S. 2035
Wei, Lillian Li-Lin 2035
Weigert, N. 725
Welches, William R. 1461
Wetherington, Jeffrey 1875
Willette, Robert N. 35
Williams, Gareth 1407
Wilson, Barry W. 1279
Wilson, William H. 757
Winer, R.L. 1005
Witte, M. 663
Wojas, Jerzy 1071
Wollemann, Maria 599
Wollman, Y. PL-205
Wong, H.N.C. PL-239
Woods, Lester PL-175
Wright, M.S. 1195
Wu, Felicia Y.-H. 1797
Wu, J. PL-239
Wu, Lingyun 793
Wu, T.W. PL-239
Xianzhu, Li PL-107
Xue, J.C. 1955
Yaga, Ken 1231
Yagi, Shigeru 1425
Yagura, Toshihiro 1063
Yahya, M. Danial 329
Yamada, H. 1031
Yamada, Jun 1845
Yamaguchi, Shuji PL-147
Yamamoto, Ikuyoshi 1063
Yamamoto, Itaru 13
Yamamoto, Toshio 777
Yamamura, Henry I. 949, 1329
Yamanaka, Miwa PL-291
Yamaura, Hiroko PL-181
Yan, D. 745
Yan, Shu-ya 2005
Yang, H.F. 1519
Yang, Jeong Soo PL-37
Yang, Wen-Chic 73
Yano, Mitsuo 717
Yazawa, Kazunaga 1371
Yeldandi, A.V. 1709
Yeoh, H.C. 2005
Yim, G.K.W. 695, 701
Yoon, Patricia 1787
Yoshimasa, Takaaki 1063
Young, Andrew A. 1717
Yu, Sung Suk 1527
Yung, Benjamin Yat-Ming 2035
Zahavi, Ilan 371
Zehetgruber, M. 1397
Zeng, L.H. PL-239
Zhu, Jianhua PL-285
Zhu, Yuan-Shan 1577
Zhuang, L.Z. 1657
Zicha, J. 1559
Ziegelhoffer, Attila 1175
Zocchetti, Andrea PL-61
Zouakia, A. 1851
Zsom, L. 1733

SUBJECT INDEX

- 1233A, effect on cholesterol biosynthesis in liver 1595
acetaldehyde, endogenous production 1249
acetaminophen, intoxication and plasma-kallikrein clearance 1451
acetaminophen, propylene glycol on metabolism of 183
acetyl-CoA carboxylase, fibrate effect on 213
acetylation, by aspirin of rat crystallins 1699
acetylcarnitine, and skeletal proteins 297
acetylcholine, effects on GTP/GDP exchange 449 *Mus.Rec.V*¹
acetylcholine metabolism, central effect of muscarinic agents on 513 *Mus.Rec.V*
acetylcholine, vasopressor effects of erythropoietin 1425
acetylcholinesterase, effect of ryanodine on maturation of 1279
acid secretion, enprostil and gastric mucosal blood flow 1621
ACTH, effect of ether on the B/I ACTH ratio 959
adenosine, caffeine and low sodium diet 883
adenosine, inhibits tumor necrosis factor 1917
adenosine A1/A2 adenosine receptors, circadian rhythm of cortical and striatal 1677
adenosine 3',5'-cyclic monophosphate, differential effects on MSH secretion 1969
adenosine triphosphatase, third isoform of Na⁺, K⁺-ATPase Activity PL-273
adenosine triphosphatases, erythrocyte as marker of liver damage 647
S-adenosylhomocysteine, maternal and embryonic, effect of nitrous oxide on 1669
S-adenosylmethionine, comparative therapy in rat liver cirrhosis PL-217
adenylyl cyclase, inhibits forskolin-stimulated cAMP accumulation 465 *Mus.Rec.V*
adenylyl cyclase, signal transduction between β -receptors and 2093 *β -rec. Symp.*²
adipocytes, lipolytic effect of β -endorphin in 657
ADP-ribosylation, NPY inhibition of PL-285
adrenalectomy, maternal, effect of, on fetal catecholamines 1609
adrenergic receptor, alpha-2 1899
 β -adrenergic receptor, in lung 2073 *β -rec. Symp.*
 β -adrenergic receptor, in respiratory disease, summary 2193 *β -rec. Symp.*
 β_2 -adrenoceptor, and formoterol 2145 *β -rec. Symp.*
 β_2 -adrenoceptor, molecular structure and regulation 2083 *β -rec. Symp.*
 β -adrenoceptor, subtypes in human tissues 1063
 β -adrenoceptor agonists, in respiratory disease, summary 2193 *β -rec. Symp.*
adrenoceptors, and inflammation in intestine 1499
adrenoceptors, anxiogenic effects of yohimbine and idazoxan 639
 β -adrenoceptors, L-NMMA and relaxation PL-135
adrenocorticotropin (ACTH), in mouse corticotroph cell line AtT-20 621

¹Subtypes of Muscarinic Receptors V: Proceedings of the Fifth International Symposium on Subtypes of Muscarinic Receptors

²Beta-receptor Agonists in Respiratory Disease: Symposium Proceedings

- affective illness, molecular genetics in 231
age, and immunosuppression 1759
aging, and changes in paroxetine binding 1767
aging, and spin clearance 2027
aging, THC effect on murine IL-2 activity 41
 β -agonists, inflammation, plasma exudation and anti-exudative action 2111 *β -rec. Symp.*
 β -agonists, on smooth muscle, nerves and inflammatory cells 2101 *β -rec. Symp.*
 β_2 -agonists, and airway responsiveness 2181 *β -rec. Symp.*
AIDS, a bioassay for plasma level determination 231
AIDS, histogenesis and cell origin of Kaposi sarcoma 663
airway epithelium, β -adrenergic receptors in 2073 *β -rec. Symp.*
airway inflammation, β -receptors and microvascular endothelium 2111 *β -rec. Symp.*
airway responsiveness, β_2 -receptor agonists on 2181 *β -rec. Symp.*
airway smooth muscle, β -adrenergic receptors in 2073 *β -rec. Symp.*
airway smooth muscle, muscarinic receptors in 521 *Mus.Rec.V*
alcohol dependence, platelet serotonin uptake in 989
alcohol, on murine macrophage function 1585
alcoholic descendants, platelet serotonin uptake in 989
aldosterone, suppressant effects of ANF inhibited by progesterone and pregnancy 1121
aldosterone production, effect of ouabain on 1777
alfentanil, and midazolam PL-55
alkaline phosphatase, activity in differentiation 2035
allergic responses, and roxithromycin in mice PL-25
Alzheimer's disease, and acetylcarnitine 297
Alzheimer's disease, WAL 2014 possible cholinergic substitution therapy 473 *Mus.Rec.V*
ambient temperature effects, in anticholinesterase-treated rats 1343
 γ -aminobutyric acid, GABA-induced GH secretion and chloride channels 1733
 γ -aminobutyric acid, on insulin secretion 687
aminopeptidase (neutral) activity, changes in LH levels 1629
amiodarone, *N*-deethylation metabolic route PL-91
amphetamine, CNS stimulant in influenza virus infection PL-73
amphetamine, on inward calcium current PL-261
amphibians, tolerance of morphine in PL-111
amphiphilic analogues, glucagon 845
amylin, hyperglycemic, hyperlactemic, hypotensive and hypocalcemic actions of 1717
analgesia, delta opioid receptor subtypes 769
analgesia, response during lactation 271
analgesia, serum glucose levels on 53
androstenedione, release from adrenals 135
anesthesia, pentobarbital effects on ANP 1351
anesthetics, local, and cocaine-induced cardiodepression 85
angiography, ET_A antagonist ameliorates vasospasm 1869
angiotensin, caffeine and low sodium diet 883
angiotensin II, and PRL and GH secretion in neonatal rats 259
angiotensin converting enzyme, distribution of brush-border membrane activities of 941
angiotensin converting enzymes, comparison of 1461 *minireview*
angiotensin processing, peptidases 1461 *minireview*
anti-bombesin antibody, VIP, helodermin, and small-cell lung cancer PL-267
anti-inflammatory medication, and β -adrenoceptor agonists 2193 *β -rec. Symp.*
antibodies, localization of muscarinic receptor subtypes 441 *Mus.Rec.V*

- antibody, morphine effects on, in beige mice PL-43
anticholinesterase, exercise and decreased core temperature 1343
antidepressant activity and beta-amylin palmitate 289
antifoam agent, warm butyl alcohol vapors as 171
antigen challenge, and loss of M_2 receptor function 529 *Mus.Rec.V*
antinociception, analgesic defect of beige-J mice 1 *minireview*
antinociception, delta opioid receptor subtypes 769
antinociception, stress induced, and substance P and somatostatin PL-169
antiprogesterin, and RU 486 155
antitumor activity of vitamin K congeners 1797
antitussives, non-opioid, and NMDA 1547
apovincaminic acid derivative, on isolated blood vessels PL-181
AQRA-741, effects on GTP/GDP exchange 449 *Mus.Rec.V*
arecoline, effects on GTP/GDP exchange 449 *Mus.Rec.V*
arginine, and release of nitric oxide 709
arginine-vasopressin, binding in human lymphocytes 95
aromatase inhibitor, and pregnancy in superovulated adult rats 61
arterial compliance, and endothelial-derived proteins 1005
ascorbate, and vasorelaxation PL-37
ascorbic acid, and sex hormone activity 1493
ascorbic acid, in the pituitary 975
aspartate aminotransferase (AST), cyclosporin A on phenytoin 199
asthma, β -adrenoceptors on airway smooth muscle 2101 *β -rec. Symp.*
asthma, and β -adrenoceptor agonists, in respiratory disease, summary 2193 *β -rec. Symp.*
asthma, and formoterol 2145 *β -rec. Symp.*
asthma, bronchopulmonary actions of endothelins 119
asthma, β -receptors and microvascular endothelium 2111 *β -rec. Symp.*
asthma, muscarinic receptors in airways 521 *Mus.Rec.V*
asthma therapy, clinical use of β -receptor agonists 2171 *β -rec. Symp.*
astrocytes, isocitrate dehydrogenase isozymes in 1087
atrial natriuretic factor, effects on aldosterone inhibited by progesterone 1121
atrial natriuretic peptide, after orchietomy 205
atrial natriuretic peptide, effects on picrotoxin-induced kindling PL-19
atrial natriuretic peptide, pentobarbital on 1351
atrial natriuretic peptide antagonist, on guanylate cyclases in T84 cells PL-153
atropine, effect on gastrin release 725
AtT-20 cells, and corticotropin-releasing factor 621
1-azabicyclo[2.2.1]-3-one oximes, design of bulky muscarinic agonists 505 *Mus.Rec.V*
B-50, and effects of ACTH-(1-24) on calmodulin release 1013
Ba 679 BR, a novel long-acting anticholinergic bronchodilator 537
baclofen, on glucose-induced insulin secretion 687
behavior, effect of non-opioid antitussives and NMDA on 1547
beige-J mice, analgesic defect of 1 *minireview*
benzo(a)pyrene, metabolism by lung 163
benzodiazepine, anxiogenic effects of yohimbine and idazoxan 639
benzodiazepine, peripheral type receptor in human hemopoietic cells 107
benzodiazepine receptors, peripheral-type 1329
benzodiazepines, midazolam - alfentanil interactions PL-55
beta-amylin palmitate, and antidepressant activity 289
bile, enhanced lithogenicity of, after morphine 701

- bilirubin diglucuronide, biliary excretion in congenitally jaundiced rats 777
biliverdin, and pyrroloquinoline 305
blood pressure, marijuana and cerebral blood flow 757
blood-brain barrier, endothelin and subarachnoid hemorrhage in 825
bombesin antagonist, on vagally-induced gastrin release 725
BQ-123, in genetic hypertensive model 717
brain, effect of (-)-deprenyl on, in old male rats 1925
brain, effect of ozone exposure on proteases 877
brain, serum free tryptophan and brain tryptophan levels in 907
bromobenzene, in TPN-induced cholestasis after zone 3 hepatic damage 371
bromocriptine, effect on plasma LH in men 1805
bromocriptine, and PRL and GH secretion in neonatal rats 259
bronchial epithelial cells, L-arginine, L-citrulline and nitric oxide in 709
bronchial hyperresponsiveness, and β -adrenoceptors 2101 *β -rec. Symp.*
bronchial hyperresponsiveness, muscarinic receptors after transplantation 613
bronchoconstriction, muscarinic receptors in airways 521 *Mus.Rec.V*
bronchodilatation, and β -adrenoceptors 2101 *β -rec. Symp.*
bronchodilation, and salmeterol 2131 *β -rec. Symp.*
bronchodilator, formoterol 2145 *β -rec. Symp.*
brush-border membrane, site-dependent absorption of peptide drugs in intestine 941
bupivacaine, and flumazenil kinetic interaction PL-165
bursa of Fabricius, detection of anti-steroidogenic peptide 1195
bursal anti-steroidogenic peptide (BASP), detection and characterization 1195
buspirone, and 5-HT-1A, behavior inhibition 997
1-butanol, in experimental pulmonary edema 171
butorphanol, binding to opioid receptors 389
butyl alcohol, in experimental pulmonary edema 171
c-met, hepatocyte growth factor in renal epithelial cells 1091
C57BL/6J/bg^J/bg^J (beige) mice, antibody responses and morphine PL-43
cadmium, metal trapping and thiol compounds 1617
caffeine, and low sodium diet 883
calcitonin gene-related peptide-I, and amylin 1717
calcium, and age-related immunosuppression 1759
calcium, effect of PP56 on neuropeptide Y 1825
calcium, effect on magnesium uptake in myocardium 1225
calcium, morphine-induced immunosuppression 1751
calcium antagonist, nitrendipine 1175
calcium channel, ryanodine induced AChE maturation 1279
calcium channel blockers, and phencyclidine 2055
calcium channels, PTH and single cell contraction 793
calcium current (inward), drugs of abuse on PL-261
calcium uptake, in corticotroph cell line AtT-20 621
calmodulin, effects of ACTH-(1-24) on 1013
calpain, effect of ozone exposure 877
cAMP, and opioid analgesia 1955
cAMP, calcium uptake, in a corticotroph cell line AtT-20 621
cAMP, effect of PP56 on neuropeptide Y 1825
cAMP, effects of agonists on 505 *Mus.Rec.V*
carbachol, effects on GTP/GDP exchange 449 *Mus.Rec.V*
carbon tetrachloride, comparative therapy in rat liver cirrhosis PL-217

- carcinogenesis, bronchopulmonary actions of endothelins 119
cardiac sarcolemma, and nitrendipine 1175
catecholamines, and natural killer cell activity 1825
catecholamines, fetal, effect of maternal adrenalectomy on 1609
catecholamines, platelet, influence of gender 1995
catecholamines, release from adrenomedullary tissue of the eel PL-117
cathepsin D, effect of ozone exposure 877
cathinone, on inward calcium current PL-261
caudate-putamen, WIN 35,428 binding in rat brain PL-141
CCK antagonist, CGRP receptors and gastric emptying 857
cDNA, complete coding for P68 RNA helicase 917
cerebral autoregulation, and sulfonyleureas 1527
cerebral blood flow, and marijuana 757
cerebral cortex, circadian rhythm of cortical and striatal adenosine receptors 1677
cerebral vasospasm, delayed, endothelin and SAH in 825
cerebral vasospasm, ET_A antagonist ameliorates vasospasm 1869
cerebrospinal fluid, monkey serotonin level 745
CGRP, and gastric emptying 857
CGRP antagonist, and gastric emptying 857
Chediak Higashi syndrome, analgesic defect of beige-J mice 1 *minireview*
chicken, methimazole, dexamethasone in avian muscular dystrophy 1149
chicken, regulation of gastroduodenal motility 191
chicken, serotonin receptors in ileum of 1361
chlordecone toxicity, on immune response PL-175
chlordiazepoxide, effect on DFMO induced audiogenic seizures 1101
chloride channel, GABA-induced GH secretion and 1733
chlorpheniramine, interaction with tolbutamide 21
cholecystokinin (CCK), and morphine in biliary tract 695
cholecystokinin (CCK), CGRP receptors and gastric emptying 857
cholecystokinin, effects on gastroduodenal coordination 191
cholestasis, and hepatic acinar site of action of TPN 371
cholesterol transport, DHA and EPA on 1371
cholinergic nerve, muscarinic receptors in airways 521 *Mus.Rec.V*
cholinergic transmission, M₂ antagonists 497 *Mus.Rec.V*
chromaffin cells, NPY inhibits ADP-ribosylation in PL-285
chromium porphyrins, effect on heme oxygenase activity PL-79
chronic morphine administration, on bile composition 701
chronic obstructive pulmonary disease, muscarinic receptors in airways 521 *Mus.Rec.V*
chronic stress, changes LH secretion 1187
chronopharmacokinetics, recent advances 1809
ciliated epithelium, cultured and lyso-PAF metabolism PL-227
circadian rhythm, of cortical and striatal adenosine receptors 1677
circadian rhythms, of corticosterone and diabetes 965
cirrhosis, erythrocyte as marker of liver damage 647
citrulline, and release of nitric oxide 709
class II HLA molecules, positive EC in human decidua 1947
clonidine, in anxiogenic action yohimbine and idazoxan 639
clorgyline, on furosemide chronopharmacology 819
CNS-active M₂ antagonists, therapeutic potential of 497 *Mus.Rec.V*
CNS depression, effect on development of physical morphine dependence 1079

- co-localization, of opioid receptors, by PL-193
cobaltic protoporphyrin IX, enhancement of GGT induction 631
cocaine, and naltrindole PL-67
cocaine, effect on cardiac output and systemic vascular resistance 85
cocaine, effect on CK leakage 751
cocaine, effects on fetal and postnatal development 2063
cocaine, on inward calcium current PL-261
cocaine, WIN 35, 428 in rat brain PL-141
cocaine neurotoxicity, central nervous component of 1387
codeine, (endogenous), and muramyl dipeptide PL-255
cognitive disorders, therapeutic potential of CNS-active M₂ antagonists 497 *Mus.Rec.V*
colchicine, alters lactate utilization in isolated hepatocytes PL-13
cold water swim stress, substance P and somatostatin in PL-169
collagen, modification by acetaldehyde 1249
cortical synaptosome, effects of ACTH-(1-24) on calmodulin release 1013
corticosteroids, and natural killer cell activity 1825
corticosterone, circadian rhythms of, in diabetes 965
corticosterone, methimazole, dexamethasone in avian muscular dystrophy 1149
corticotropin, β -endorphin and fentanyl in rat pups 1417
corticotropin-releasing factor (CRF), and AtT-20 cells 621
creatine kinase, effect of cocaine on leakage of 751
creatinine, cyclosporin A on phenytoin 199
crystallins, *in vitro* glycation and acetylation, by aspirin 1699
cyclic-3',5'-adenosine monophosphate, effects of β -phenethylamines 1287
cyclic AMP, and NK cells 1825
cyclosporin A, chronic administration of, on phenytoin 199
cysteamine, in gastric acid secretion 1861
cystine binding protein, of *E. coli* 1209
cytidylate cyclase, activation by G-protein 13
cytochrome C, and shock protein fragments 1487
cytochrome P450, and flavin-containing monooxygenase in rat kidney microsomes 1601
cytochrome P450TB, oxidation of diclofenac 29
cytoskeletal proteins, and acetylcarnitine 297
D1 dopamine receptor, effect of ethanol on 251
DAMGO, and antinociception in mice 769
D-aspartic acid, in nervous tissue of mollusk 733
debrisoquine, inhibition of metabolism 21
decidual cell response, and methoxychlor 347
delayed neuronal death, and hypothermia 1023
DELT II, and antinociception in mice 769
delta opioid receptors, subtypes 769
delta selective opioid antagonists, naltrindole and cocaine PL-67
delta-9-tetrahydrocannabinol, effect on murine IL-2 activity 41
Dendroaspis angusticeps, venom of, and mus. acetylcholine receptors 433 *Mus.Rec.V*
dependence, saline inhibition of morphine withdrawal 1129
deprenyl, chronic treatment prolongs life span 281
(-)deprenyl, effect on brains of old male rats 1925
dermorphin, effect on animal behavior 323
• desethylamiodarone, major pharmacological active metabolite of amiodarone PL-91
desmethylinipramine, effect on somatostatinergic system in brain 803

- desmethysertraline, blockade of biogenic amine uptake by 1023
dexamethasone, GGT induction in P-450 depleted rat liver 631
dexamethasone, and morphine in inbred mice 835
dezocine, binding to opioid receptors 389
DFMO-induced audiogenic seizures, effect of chlordiazepoxide 1101
diabetes, circadian rhythms of corticosterone in 965
diabetes, mice, nociceptive response in PL-31
diabetes, mu-opioid agonist on 53
diabetes mellitus, effect on urinary epidermal growth factor excretion 1181
diabetes mellitus, uremic sera and mesangial cells 1891
diabetic nephropathy, a factor which reduces urinary epidermal growth factor 1181
diabetic retinopathy, a factor which reduces urinary epidermal growth factor 1181
diazepam, prenatal effects on ω 3 benzodiazepine receptors 927
diazepam, state-dependency by 1935
diazepine binding inhibitor, in human lymphocytes 1265
diclofenac, cytochrome, P450TB oxidation of 29
differentiation, ALP activity in 2035
5,7-dihydroxytryptamine, effect on somatostatinergic system in brain 803
dipeptidyl peptidase IV, distribution of brush-border membrane activities of 941
diphenhydramine, interaction with tolbutamide 21
docosahexaenoic acid, effect on cholesterol transport 1371
dog, ET_A antagonist ameliorates vasospasm in 1869
dopamine, differential effects on MSH secretion 1969
dopamine, increased activity of, in the medial preoptic area after copulation 935
dopamine, iodinated ligands of D2 receptors 1851
dopamine, NPY and gonadal development in chicks 1649
dopamine, striatal, effect of chronic administration of morphine on 1527
dopamine receptors, in regulation oxytocin and AVP 1301
[³H]dopamine release, effects of ACTH-(-24) on 1013
dopamine transporter, WIN 35,428 binding in rat brain PL-141
dopamine turnover, and κ agonist-induced μ blocking effect 397
dopamine uptake, WIN 35,428 binding in rat brain PL-141
DPDPE, and antinociception in mice 769
DPDPE, and intracellular free calcium in NG-108-15 cells 1519
drug discrimination, PTZ in haloperidol withdrawal PL-129
duodenum, M₁ receptors mediating NANC relaxation 481 *Mus.Rec.V*
EEG, effect of non-opioid antitussives and NMDA on 1547
EEG, influence of muscarinic drugs on rat hippocampal theta energy 513 *Mus.Rec.V*
eel, plasma levels of alkaloid opiates in PL-117
effusion, transforming growth factor- α in 1381
EIA oncogene, and signal transduction 891
eicosapentaenoic acid, effect on cholesterol transport 1371
Eisai hyperbilirubinuria rats, with congenital conjugated hyperbilirubinemia 777
electron spin resonance, and membrane effects of psychoactive drugs PL-7
ELISA, GAP-releasing enzyme and PC1/3 147
embryo, chick, PQQ and biliverdin excretion 305
endogenous codeine, release from adrenomedullary tissue PL-117
endogenous morphine, release from adrenomedullary tissue PL-117
endogenous opioid peptides, in growth hormone secretion 1443
endopeptidase-24.11, distribution of brush-border membrane activities of 941

- β -endorphin, ACTH and fentanyl in rat pups 1417
 β -endorphin, lipolytic effect of, in human fat cells 657
 β -endorphin-induced antinociception, effect of spinal $\delta 2$ opioid receptors on PL-211
endothelial cell dysfunction, OP-41483- α -CD on 1257
endothelial cells, expression of class II HLA molecules by, in human decidua 1947
endothelin, and subarachnoid hemorrhage 825
endothelin, effects of forebrain ischemia on 35
endothelin, ET_A antagonist ameliorates vasospasm 1869
endothelin 1,2, in thermal injury PL-291
endothelin-3, and PRL and GH secretion in neonatal rats 259
endothelin antagonist, in genetic hypertensive model 717
endothelin ET_A receptor antagonist, and subarachnoid hemorrhage 825
endothelin isopeptides, effects on airways and pulmonary circulation 119
endothelin isopeptides, effects on inflammatory cells 119
endothelins, effects on prostanoid and PAF release 119
endothelium, ascorbate-induced vasorelaxation PL-37
endothelium, vascular, effect of thymic peptide on 1787
endothelium-dependent contraction (EDC), in monkey basilar artery 377
endothelium-derived relaxing factor, and L-NMMA PL-135
enkephalin, on GTP binding in hippocampus 901
enprostil, and blood flow 1621
eosinophils, coupling of PAF receptors 1633
epidermal growth factor (EGF), and TGF- α radioreceptorassay, TGF- α in 1381
epidermal growth factor (EGF), effect on cell turnover 1135
epidermal growth factor, in urine 1181
erythrocyte, as marker of liver damage 647
erythrocyte membrane, and acetylcarnitine 297
erythropoietin, vasopressor effects on 1425
Escherichia coli, cystine binding protein of 1209
estradiol, and pregnancy in superovulated adult rats 61
estradiol, opioid role in sex-dependent GH secretion 1443
estral cycle, GABA concentration 811
estrogen, methoxychlor and decidual cell response 347
estrogens, steroid regulation of ODC in the spinal cord 677
estrous cycle, nAAP on LH activity 1629
ethanol, comparative therapy in rat liver cirrhosis PL-217
ethanol, effect on D1 dopamine receptor 251
ethanol, on *in vitro* tumor necrosis factor and gamma-interferon 1319
ethanol, on punished and non-punished responding PL-1
ethanol, verapamil delays tolerance to 1295
ether, effect on B/I ACTH ratio 959
etonitazene, binding to opioid receptor types PL-199
exercise, physostigmine and thermoregulation 1343
extensor digitorum longus (EDL), 751
extracranial skin blood flow, and marijuana 757
fatty acid synthesis, fibrate effect on lipogenic enzymes 213
fatty acids, modulation of prolactin-induced Nb₂ cell growth 1977
feedforward control, tentativeness and fervor in cell biology 1985
fentanyl, and ACTH endorphin in rat pups 1417
fentanyl, binding to opioid receptors 389

- fetal development, cocaine effects on, in mice 2063
fibrates, effect on lipogenic enzymes 213
fibroblasts, cultured human, PQQ and PQQ-oxazole on 1909
Fischer 344 rats, age-related changes in paroxetine binding 1767
Fischer 344 rats, deprenyl-induced life span prolongation 281
flavin-containing monooxygenase, in rat kidney microsomes 1601
flumazenil, and bupivacaine PL-165
fluorescence, microscopy, in co-localization of opioid receptors PL-193
fluoxetine, effects on brain serotonin levels PL-187
food deprivation, GHRH and somatostatin in 981
food restriction, aging and spin clearance 2027
formoterol, and long-acting β -receptor agonists 2161 *β -rec. Symp.*
formoterol, selective β_2 -adrenoceptor agonist, pharmacology of 2145 *β -rec. Symp.*
frontoparietal cortex, effect of serotonin axon injury in 803
fura-2, insulin secretion 687
furosemide, chronopharmacology clorgyline treatment on 819
G-protein, and phospholipase C 413 *Mus.Rec.V*
G-protein, effect on cytidylate cyclase 13
G-protein, muscarinic modulation of ion channels 457 *Mus.Rec.V*
G-proteins, coupling of eosinophil PAF receptors 1633
G-proteins, regulation by phosphorylation 421 *Mus.Rec.V*
G-protein-coupled receptor signaling, and β_2 -adrenoceptor 2083 *β -rec. Symp.*
G-protein coupling, in muscarinic acetylcholine receptors 405 *Mus.Rec.V*
G-protein receptors, precoupling of 1899
G-protein-receptor coupled signaling, β receptors and adenylyl cyclase 2093 *β -rec. Symp.*
GABA, differential effects on MSH secretion 1969
GABA, efflux and oviductal fluid volume 811
GABA, GH secretion and chloride channels 1733
galanin, and spinal norepinephrine PL-251
gallamine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
gamma-glutamyltransferase, induction in neonatal liver 631
gamma-interferon production, ethanol on 1319
GAP, phospholipase C 413 *Mus.Rec.V*
gastric acid secretion, cysteamine induced 1861
gastric acid secretion, effect of IL-1 β and IL-1 α on 785
gastric emptying, and CGRP receptors 857
gastrin, effects on gastroduodenal coordination 191
gastrin release, and bombesin antagonist 725
gastroduodenal coordination, effects of gastrin-CCK peptides 191
gastrointestinal smooth muscle, serotonin receptors in chicken ileum 1361
gender, influences platelet catecholamines 1995
gene expression, and β_2 -adrenoceptor 2083 *β -rec. Symp.*
genetically epilepsy-prone rat (GEPR), ICV norepinephrine in 1435
gestation, maternal adrenalectomy on fetal catecholamines 1609
GH, GABA-induced GH secretion and chloride channels 1733
GH-releasing hormone, and somatostatin in food deprivation 981
glial cell, NO synthase and neuronal survival 1883
glibenclamide, and autoregulatory response of cerebral arteries 15273
glipizide, and autoregulatory response of cerebral arteries 1527
glomerular epithelial cell, hepatocyte growth factor in 1091

- glomerulosclerosis, uremic sera and mesangial cells 1891
glucagon, blood, somatostatin and propranolol on morphine induced increases in 141
glucagon, hyperglucagonemia induced by serotonin 1845
glucagon analogues, structure activity relationships 845
glucocorticoid, on PQQ and biliverdin excretion 305
glucocorticoids, in avian muscular dystrophy 1149
glucocorticoids, receptors and enzyme induction 677
gluconeogenesis, colchicine and lactate utilization PL-13
glucose, and neutrophil's free-radicals 1481
glucose, blood, somatostatin and propranolol on morphine induced increases in 141
glucose-6-phosphate dehydrogenase, fibrate effect on lipogenic enzymes 213
glutathione, conjugation to quinones 1239
glutathione, effect on metal trapping 1617
glutathione, efflux from hepatocyte 1217
glutathione, PQQ and biliverdin excretion 305
glycation, of rat crystallins 1699
gnawing, persistent, and haloperidol 869
gonadotropin releasing hormone, and bromocriptine 1805
gonadotropin releasing hormone, and PC1/3 147
 G_q , and phospholipase C 413 *Mus.Rec.V*
ground squirrels, development of morphine dependence in nonhibernating state 1079
growth factors, in lung cancer 1161
growth hormone, and prolactin in neonatal rats 259
growth hormone, GABA-induced GH secretion and chloride channels 1733
growth hormone, sex-dependent, opioid role 1443
growth hormone, somatostatin in deprivation 981
GTP binding, DADLE on, in hippocampus 901
GTPase, low activity, in different areas of mouse CNS PL-123
GTPase, phospholipase C 413 *Mus.Rec.V*
guanine nucleotide exchange, effects via cloned human mus. rec. subtypes 449 *Mus.Rec.V*
haloperidol, persistent gnawing and limbic seizures 869
haloperidol, pentylentetrazol in withdrawal from PL-129
heart, chick, identification of receptor subtypes 429 *Mus.Rec.V*
heat shock protein 70, and cytochrome C. 1487
helodermin, VIP, and small-cell lung cancer PL-267
heme oxygenase, chromium porphyrins on PL-79
hemoglobin A1c, correlation with urinary epidermal 1181
Hep G2 cells, glutathione efflux 1217
hepatic acinar zone 3, and cholestasis 371
hepatocyte, in liver damage 647
hepatocytes, colchicine alters lactate utilization in PL-13
hexahydrosiladifenidol, effects on GTP/GDP exchange 449 *Mus.Rec.V*
himbacine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
hippocampus, age-related changes in paroxetine binding 1767
hippocampus, DADLE on GTP binding in 901
hippocampus, rabbit, dermorphin on 323
histamine, muscarinic receptors PL-107
histamine, nitric oxide on PL-159
histamine receptors stimulation, effects on contractility PL-49
HIV, a bioassay for plasma level determination 231

- hormones, steroids and peroxisomes in liver 1709
3H-NMS binding, SDZ ENS 163 in CHO cells and muscarinic receptors 513 *Mus.Rec.V*
15-HPETE, endothelial cell dysfunction, OP-41483- α -CD on 1257
5-HT uptake sites, age-related changes in paroxetine binding 1767
5-HT-1A receptor, mediated behavioral effects 997
5-HT_{1A} receptor agonist, 8-OH-DPAT and reserpine 1741
5HT_{1A} receptors, expression of, in HeLa cell line 949
human, β -adrenoceptor subtypes on 1063
human decidua, class II HLA positive EC in 1947
human liver microsomes, *in vitro* model for testing drug metabolism PL-91
hydroquinone, multiple conjugation with glutathione 1239
hydroquinone, on IOD activity 1695
3-hydroxy-3-methylglutaryl coenzyme A synthase, *in vivo* inhibition by 1595
5-hydroxy-L-tryptophan, prolactin stimulation test 975
5-hydroxytryptamine, in chicken ileum 1361
5-hydroxytryptamine₂, receptor regulation 313
5-hydroxytryptamine₄ receptor, coupling to adenylyl cyclase in human brain PL-61
hyperresponsiveness, and muscarinic receptors function 529 *Mus.Rec.V*
hyperserotonemia, of autism 2005
hypertension, arterial compliance and endothelial activity 1005
hypertension, vasopressor effects of erythropoietin 1425
hypertonic, glucose and neutrophil's free radicals 1481
hypnorm, and ACTH/endorphin in rat pups 1417
hypothalamic cells, fetal NA system inhibits LHRH release 2017
hypothalamus, effect on insulin on NPY in 1407
hypothalamus, ir-dyn A in human plasma 223
hypothermia, and delayed neuronal death 1023
hypoxemia, warm 1-butanol vapor therapy in 171
idazoxan, anxiogenic action of 639
IL-2, morphine-induced immunosuppression 1751
IL-2 receptor, age-related immunosuppression 1759
IL-receptor antagonist, effect on gastric acid secretion 785
immobilization stress, in acute stress 361
immune cells, β -adrenergic receptors in 2073 *β -rec. Symp.*
immune cells, benzodiazepine receptors distribution in 107
immune complexes, plasma malondialdehyde modified proteins 329
immune function, and age 1759
immune function, morphine-induced suppression on 1751
immune response, effect of chlordecone toxicity on PL-175
immune system, ontogeny of, effects of benzodiazepines 927
immunocytochemistry, localization of muscarinic receptor subtypes 441 *Mus.Rec.V*
immunoreactants, endothelin like, and thermal injury PL-291
immunoreactive dynorphin A, in human plasma 223
inbred mice, dexamethasone and morphine in 835
inflammation, and formoterol 2145 *β -rec. Symp.*
inflammation, and loss of M₂ receptor function 529 *Mus.Rec.V*
inflammation, and salmeterol 2131 *β -rec. Symp.*
inflammation, intestinal adrenoceptors 1499
inflammatory mediators, β -adrenergic receptors in 2073 *β -rec. Symp.*
influenza A, effects of amphetamine on PL-73

- 1,2,6-inositol-triphosphate, on NPY 1825
insulin, blood, somatostatin and propranolol on morphine induced increases in 141
insulin, on neuropeptide Y in hypothalamus 1407
insulin, suppressive effect of GABA 687
interleukin 2, THC effect on, in mice of different ages 41
interleukin-1, effects on norepinephrine 1961
interleukin-1 β , effect on gastric acid secretion 785
interleukin-5, production, inhibition of, by roxithromycin PL-25
intestine, small, and adrenoceptors 1499
intracranial diseases, natriuretic factors in patients with 1875
IOD, activity hydroquinone on 1695
iodobenzamidine, iodinated ligands of D2 receptors compared 1851
iodoethylpiperone, iodinated ligands of D2 receptors compared 1851
ion channels, modulation on 457 *Mus.Rec.V*
ipratropium bromide, muscarinic receptors in airways 521 *Mus.Rec.V*
ipsapirone, and 5-HT-1A, behavior inhibition 997
ischemia, hypothermic prevention of hippocampal damage 1023
isocitrate dehydrogenase, in type-1-like astrocytes 1087
isolated adrenocortical cells, effect of ether on the B/I ACTH ratio 959
isoproterenol, enprostil and gastric mucosal blood flow 1621
isosorbide dinitrate, effect on opioid withdrawal PL-239
isozymes, in type-1-like astrocytes 1087
K⁺ channel blocker, cerebral autoregulation and sulfonylureas 1527
Kaposi sarcoma, and monoclonal antibodies 663
kappa-opioid receptor, evidence for different subtypes 599 *minireview*
ketanserin, effect on LH and ovulation 669
kexin, GAP-releasing enzyme and PC1/3 147
L-aspartate, autoradiography of sodium-dependent binding sites 863
L-dihydroxyphenylalanine (L-DOPA), NPY and gonadal development in chicks 1649
L-NMMA, β -adrenoceptors and EDRF PL-135
L-NMMA, on β -adrenoceptor-mediated relaxation PL-135
L-tryptophan, increases serum melatonin 1231
lactation, analgesic response 271
learning, state-dependent, by diazepam and muscimol 1935
LH secretion, chronic stress changes 1187
LHRH, fetal NA system inhibition of 2017
life span, following (-)deprenyl 281
limbic seizures, persistent gnawing and haloperidol 869
linkage analysis, molecular genetics in affective illness 231
lipid peroxidation, plasma malondialdehyde 329
lipid peroxidation, thymic peptide protects vascular endothelium 1787
lipolysis, beta-endorphin mediated in human fat cells 657
5-lipoxygenase pathway, involvement in anti-ulcer activity 737
lithium transport, natriuretic factors in intracranial diseases 1875
lithospermate B, myocardial protection by PL-239
liver, plasma-kallikrein, clearance and acetaminophen intoxication 1451
liver, rat, fibrate effect on lipogenic enzymes 213
liver, steroids and peroxisomes 1709
liver cirrhosis, comparative therapy in PL-217
liver function, cyclosporin A on phenytoin 199

- lung, β -adrenergic receptors 2073 *β -rec. Symp.*
lung, muscarinic receptors in 521 *Mus.Rec.V*
lung cancer, growth factors in 1161
lung transplantation, and muscarinic receptors 613
luteinizing hormone, and naltrexone-estrone azine in pituitary 1311
luteinizing hormone-releasing hormone, and bromocriptine 1805
luteinizing hormone-releasing hormone, and naltrexone-estrone azine in pituitary 1311
lymphocyte proliferation, effects of porcine uterine fluid filtrate on 73
lymphocytes, effect of RBF hemicellulose on 9
lymphocytes, human, topology of peripheral DBI receptors in 1265
lyso-PAF, metabolism of ciliated epithelium PL-227
m-CPP, supersensitivity to m-CPP in females PL-279
m1 muscarinic receptor, selectivity over m2, m3 and m4 505 *Mus.Rec.V*
M₁ receptor stimulating activity, and WAL 2014 473 *Mus.Rec.V*
M₂ antagonists, acetylcholine release 497 *Mus.Rec.V*
M₂ muscarinic receptors, inhibition by inflammatory cell products 529 *Mus.Rec.V*
macrophages (rat), ω 3 receptors after prenatal diazepam 927
magnesium, calcium dependent uptake of, in myocardium 1225
major basic protein, an endogenous antagonist of M₂ receptors 529 *Mus.Rec.V*
manganese, effect on PC-12 cells 1567
manic depressive illness, molecular genetics in affective illness 231
marijuana, and cerebral blood flow 757
maternal-adrenalectomy, and fetal catecholamines 1609
McN-A343, effects on GTP/GDP exchange 449 *Mus.Rec.V*
medial preoptic area, increase of dopamine activity after copulation 935
medulla oblongata, and codeine neurotoxicity 1387
 α -melanophore-stimulating hormone, regulation of secretion 1969
melatonin, serum, increased by tryptophan 1231
membrane fluidity, and cell sodium 1559
membrane fluidity, membrane effects of psychoactive drugs PL-7
membrane lipids, in psychoactive drugs PL-7
menstrual cycle, and platelet catecholamines 1995
mercury, metal trapping and thiol compounds 1617
mesangial cells, uremic sera 1891
mesolimbic dopamine system, κ agonist-induced μ blocking effect 397
metabotropic glutamate receptor agonist, strain-dependent neuronal damage PL-85
metallothionein, role in mucosal trapping 1617
methadone, interaction with tolbutamide
methimazole, in avian muscular dystrophy 1149
methocramine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
methocramine, muscarinic receptors in airways 521 *Mus.Rec.V*
methoxychlor, and decidual cell response 347
methyl furmethide, effects on GTP/GDP exchange 449 *Mus.Rec.V*
3-methylcholanthrene, effect on pulmonary benzo(a)pyrene metabolism 163
methylphenidate, interaction with tolbutamide 21
N-methyl-scopolamine, in recombinant cells 465 *Mus.Rec.V*
metoclopramide, prolactin stimulation test 975
mi-toxin, studies of 433 *Mus.Rec.V*
midazolam, and alfentanil PL-55
middle-T oncogene, and signal transduction 891

- mitogen, and immunomodulatory factors in porcine uterus 73
mitogenesis, hepatocyte growth factor in renal epithelial cells 1091
mitogens, uremic sera and mesangial cells 1891
6-monoacetylmorphine, interaction with tolbutamide 21
monoamine oxidase inhibitor, and ICV norepinephrine and seizures in GEPR 1435
monoclonal antibody, AIDS-KS cells 663
morphine, analgesic effect post-partum 271
morphine, and antibody in beige mice PL-43
morphine, and CCK in biliary tract 695
morphine, and dexamethasone in inbred mice 835
morphine, binding to opioid receptors 389
morphine, effect of chronic administration on striatal dopamine 1527
morphine, immunosuppression induced by 1751
morphine, in growth hormone secretion 1443
morphine, on μ -opioid receptor regulation 1685
morphine, saline inhibition of withdrawal 1129
morphine, supraspinal and spinal mu opioid receptors in 1039
morphine, tolerance development in amphibians PL-111
morphine dependence, changes in striatal dopamine release and metabolism 1527
morphine (endogenous), and muramyl dipeptide PL-255
morphine physical dependence, effect of CNS depression 1079
morphine withdrawal syndrome, effect of nitric oxide synthase inhibitors PL-239
mRNA, regulation by agonist 429 *Mus.Rec.V*
mu opioid agonist, serum glucose levels on 53
mu opioid receptors, etonitazene selective for PL-199
mu opioid receptors, supraspinal and spinal, in morphine 1039
mu-repressin, analgesic defect of beige-J mice 1 *minireview*
muramyl dipeptide (MDP), effects on endogenous morphine and codeine PL-255
murine macrophage function, and alcohol 1585
murine recombinant interleukin 5, on PAF-induced hyperreactivity PL-147
muscarinic agonists, effect of varying the efficacy of 481 *Mus.Rec.V*
muscarinic agonists, potency and efficacy at human subtypes 449 *Mus.Rec.V*
muscarinic antagonists, functional subtype selectivity 449 *Mus.Rec.V*
muscarinic drugs, effects on guanine nucleotide exchange 449 *Mus.Rec.V*
muscarinic receptor subtypes, functional responses in membranes 449 *Mus.Rec.V*
muscarinic receptor subtypes, localization with antibodies 441 *Mus.Rec.V*
muscarinic receptor subtypes, modulation of ion channels 457 *Mus.Rec.V*
muscarinic receptors, after lung transplantation 613
muscarinic receptors, agonists which functionally discriminate between 489 *Mus.Rec.V*
muscarinic receptors, and histamine PL-107
muscarinic receptors, phosphorylation regulation by G-proteins 421 *Mus.Rec.V*
muscimol, state-dependency by 1935
muscle, skeletal, cocaine effect on CK leakage 751
muscular dystrophy, methimazole, dexamethasone in avian 1149
myocardial protection, by lithospermate B PL-239
myocardium, calcium dependent magnesium uptake in 1225
Na/K+ATPase, and nitrendipine 1175
Na+ /K+ -ATPase, inhibition by factors in urine 1045
NAD(P), in type-1-like astrocytes 1087
nalbuphine, binding to opioid receptors 389

- naloxone, in growth hormone secretion 1443
naloxone, in mu opioid receptors and opiate dependence 1039
naloxone, saline inhibition of morphine withdrawal 1129
naltrexone, and LH release from pituitary 1311
naltrexone, on μ -opioid receptor regulation 1685
naltrexone-estrone azine, and LH release from pituitary 1311
naltrindole, and cocaine PL-67
natriuresis, as a result of factors in urine 1045
natriuretic factor, in plasma of patients with intracranial diseases 1875
natriuretic hormone, possible factor involved in volume homeostasis 1045
natriuretic peptide, brain, effects on picrotoxin-induced kindling PL-19
natriuretic peptide, C-type, effects on picrotoxin-induced kindling PL-19
natural killer cell activity, and psychobiological factors 1825
Nb2 lymphoma cell, PRL and GH secretion in neonatal rats 259
Nb₂ lymphoma cells, mitogenic-responsiveness to prolactin 1977
neonatal pituitary, GABA-induced GH secretion and chloride channels 1733
neurite outgrowth, manganese effect on PC-12 cells 1567
neuroblastoma, human, evidence for opioid receptors in PL-205
neuroimmunomodulation, morphine affects antibody in beige mice PL-43
neuronal survival, and NO synthase 1883
neuropeptide Y, differential effects on MSH secretion 1969
neuropeptide Y, in hypothalamus, effect on insulin on 1407
neuropeptide Y, inhibits ADP-ribosylation PL-285
neurotransmitter release, galanin and spinal norepinephrine PL-251
neutral endopeptidase 24.11, and enzymatic activity of 1461 *minireview*
neutrophil, free-radicals and glucose 1481
neutrophil, respiratory burst 1727
NG 108-15 cells, DPDPE, Ca²⁺ and protein kinase 1519
N^G-nitro-L-arginine methyl ester, effect on opioid withdrawal PL-239
nifedipine, comparative therapy in rat liver cirrhosis PL-217
nigrostriatal pathway, quantitation of tryrosine hydroxylase and PPenk mRNA in 1577
nitric oxide, and lung epithelial cells 709
nitric oxide, and vascular smooth muscle 1397
nitric oxide, effect on opioid withdrawal PL-245
nitric oxide, on histamine and serotonin edema PL-159
nitric oxide, synthase and neuronal survival 1883
N-nitrosodimethylamine, cirrhosis production 1249
nitrous oxide, effects on AdoMet and ODC 1669
nitroxyl radical, spin clearance and aging 2027
NK-1 receptor, and substance P PL-103
NK-1 receptor, antagonists define receptor subtypes 1141
NMDA, and non-opioid antitussives 1547
nociceptive response, in diabetic mice PL-31
nomifensine, on inward calcium current PL-261
[³H]noradrenaline release, effects of ACTH-(-24) on 1013
noradrenergic neurons, inhibitory action on luteinizing hormone-releasing hormone 2017
norepinephrine, and seizures in genetically epilepsy prone rat 1435
norepinephrine, placental progesterone production 1657
norepinephrine, released by interleukin-1 1961
norepinephrine, spinal, and galanin PL-251

- norepinephrine, vasopressor effects of erythropoietin 1425
norfluoxetine, blockade of biogenic amine uptake by 1023
norharman, occurrence of, in rat organs 2035
NPY, effect of PP56 on 1835
nutrition, role of vanadium 339
8-OH-DPAT, 5-HT-1A, behavior inhibition 997
8-OH-DPAT, and reserpine 1741
ONO-1078, peptide LT antagonist, on TxB_2 production PL-97
OP-41483- α -CD, on 15-HPETE endothelial cell dysfunction 1257
opiate alkaloids, release from adrenomedullary tissue PL-117
opiates, binding of, to NMB cell membranes PL-205
opioid, receptors, co-localization of on SK-N-SH cells PL-193
opioid analgesia, and cAMP 1955
opioid analgesics, receptor binding of 389
opioid antagonists, and LH release from pituitary 1311
opioid interactions, κ agonist-induced μ blocking effect 397
opioid ligands, determination of, by PS-SPCLs 1509
opioid receptors, in human neuroblastoma cells PL-205
opioid-mu receptor, analgesic defect of beige-J mice 1 *minireview*
opioids, midazolam - alfentanil interactions PL-55
orchiectomy, and ANP 205
ornithine decarboxylase, nitrous oxide effects on 1669
osteogenic disorder shionogi (ODS), role of ascorbic acid in prolactin secretion 975
ouabain, on aldosterone production 1777
oviductal fluid volume, effect upon GABA efflux 811
oxotremorine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
oxotremorine-M, effects on GTP/GDP exchange 449 *Mus.Rec.V*
oxygen-derived free radicals, and glucose 1481
oxytocin, dopamine receptors regulate secretion of 1301
oxytocin receptors, in thymus, effect of mating on densities of 1781
ozone, and loss of M_2 receptor function 529 *Mus.Rec.V*
P450 3A subfamily, involvement in amiodarone *N*-deethylation PL-91
P68 mRNA molecule, high conservation of coding sequence 917
PAF synthesis, on human paranasal sinus mucosa PL-227
pain, lack of antinociception by SP antagonist 353
paranasal sinus mucosa, metabolism of lyso-PAF on PL-227
parathyroid hormone, and single cell contraction 793
pargyline, and ICV norepinephrine and seizures in GEPR 1435
pargyline, on inward calcium current PL-261
paroxetine, blockade of biogenic amine uptake by 1023
PC proteinases, GAP-releasing enzyme and PC1/3 147
PC-12 cells, manganese effect on 1567
pentobarbital anesthesia, effect on development of morphine physical dependence 1079
pentobarbital sodium, and ANP 1351
pentylenetetrazol, in haloperidol withdrawal PL-129
peptide design, constraints in glucagon 845
peptide drugs, site-dependent absorption of, in rabbit intestine 941
peptide leukotriene receptor antagonist, ONO-1078 PL-97
peptides, lung cancer growth factors in 1161
peripheral benzodiazepine (ω 3) receptor, in rat macrophages and lymphocytes 927

- peripheral DBI receptors, topology of, in human lymphocytes 1265
peroxisomes, and steroids in liver 1709
pertussis toxin, effects on muscarinic receptor/G-protein coupling 449 *Mus.Rec.V*
pertussis toxin, NPY inhibits ADP-ribosylation PL-285
phencyclidine, calcium channel blocker and 2055
 β -phenethylamines, effects on intracellular cAMP concentrations 1287
phenothiazines, spin-label study PL-7
phenylpropanolamine (PPA), effects on intracellular cAMP concentration 1287
phenytoin, cyclosporin A on 199
phosphatase, okadaic acid, oxidative burst 1727
phosphatidylinositol, hydrolysis by muscarinic agonists 465 *Mus.Rec.V*
phosphoinositide turnover, effect of muscarinic agents on 513 *Mus.Rec.V*
phospholipase, effect of and GAP for G_q 413 *Mus.Rec.V*
physostigmine, exercise and decreased core temperature 1343
PI turnover, effects of agonists on 505 *Mus.Rec.V*
pilocarpine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
pineal gland, tryptophan increases melatonin 1231
pirenzepine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
pirenzepine, muscarinic receptors in airways 521 *Mus.Rec.V*
pituitary, ir-dyn A in human plasma 223
pituitary, prolactin secretion and ODS 975
pituitary autoregulation, PRL and GH secretion in neonatal rats 259
plasma, human, immunoreactive dynorphin A in 223
plasma exudate, β -receptors and microvascular endothelium 2111 *β -rec. Symp.*
plasma-kallikrein, clearance and acetaminophen intoxication 1451
plasma malondialdehyde, in streptozotocin induced diabetic rats 329
platelet, catecholamines and gender 1995
platelet, membrane fluidity and cell sodium 1559
platelet activating factor, and murine recombinant interleukin 5 PL-147
platelet activating factor, coupling of eosinophil PAF receptors 1633
platelet serotonin uptake, in alcoholic descendants 989
platelets, 5-HT₂ receptor regulation 313
Pluchea indica, anti-ulcer activity of 737
polychlorinated biphenyls, effect on pulmonary benzo(a)pyrene metabolism 163
polychlorinated dibenzofurans, effect on pulmonary benzo(a)pyrene metabolism 163
postnatal development, cocaine effects on, in mice 2063
potassium channel, modulation of ion channels 457 *Mus.Rec.V*
potassium channel activator (RWJ 29009), vasorelaxant effect is tissue selective PL-233
PP56, effect on NPY 1835
PQQ-oxazole, on human fibroblasts 1909
PR-8/34 virus (influenza A), effects of amphetamine on PL-73
pregnancy, nAAP on LH activity 1629
pressor effects, as a result of factors in urine 1045
procaine, cardiovascular responses 85
proenkephalin mRNA, quantitation of 1577
progesterone, and pregnancy in superovulated adult rats 61
progesterone, norepinephrine and placental production 1657
pro-GnRH, GAP-releasing enzyme and PC1/3 147
progestin, and RU 486 155
prolactin, and growth hormone secretion in neonatal rats 259

- prolactin, effect on Nb₂ cells proliferation 1977
prolactin secretion, in ODS rat, role of ascorbic acid 975
prolyl endopeptidase, properties and enzymatic activity of 1461 *minireview*
propranolol, on morphine induced levels of blood glucose, glucagon and insulin 141
propylbenzylcholine mustard, alkylation of muscarinic receptors 465 *Mus.Rec.V*
propylene glycol, effect on acetaminophen metabolism 183
prorelaxin, biological activity 1055
prostacyclin analog, OP-41483- α -CD 1257
prostaglandin, enprostil and blood flow 1621
prostaglandins, and M₂ receptor function 529 *Mus.Rec.V*
protein kinase, DPDPE and Ca²⁺ 1519
protein kinase C, involvement in prolactin signal transduction 1977
protein kinase C, role in glutathione efflux 1217
protoporphyrin IX, in human lymphocytes 1265
proximal tubule, and hepatocyte growth factor 1091
psychoactive drugs, interaction with tolbutamide 21
psychosis, occurrence of partition of norharman in rat organs, implications 2045
pulmonary edema, warm 1-butanol vapor therapy in 171
pulmonary edema formation, bronchopulmonary actions of endothelins 119
pulmonary hypertension, asthma, bronchopulmonary actions of endothelins 119
push-pull perfusion, in acute stress 361
pyrroloquinoline quinone, and biliverdin excretion 305
pyrroloquinoline quinone (PQQ), effect on DNA synthesis 1909
quasi morphine-abstinence syndrome, isosorbide dinitrate-induced PL-239
radioligand binding assay, tissue distribution of β_1 - and β_2 -adrenoceptor subtypes 1071
receptor, 5-HT₂ regulation 313
receptor reserve, role in muscarinic agonist efficacy and potency 465 *Mus.Rec.V*
recombinant prorelaxin, expressed in Chinese hamster ovary cells 1055
 β -receptor binding, and salmeterol 2131 *β -rec. Symp.*
renal failure, uremic sera and mesangial cells 1891
renin, caffeine and low sodium diet 883
respiratory control, and cocaine neurotoxicity 1387
retinoic acid, induced differentiation and ALP activity 2035
retroviral infection, effect on TNF production 1641
reverse transcriptase, a bioassay for plasma level determination of HIV 243
rhabdomyolysis, cocaine effect on CK 751
rice bran hemicellulose, effect on lymphocytes in peripheral blood of rats 9
roxithromycin, anti-allergic activity of PL-25
Ru 24.969, and 5-HT-1A, behavior inhibition 997
RU 486, analogs with agonist activity 155
RU 486, progestational activity 155
ryanodine, induces AChE maturation 1279
saline, in morphine withdrawal 1129
salmeterol, and long-acting β -receptor agonists 2161 *β -rec. Symp.*
salmeterol, pharmacology of 2131 *β -rec. Symp.*
schedule-controlled behavior, ethanol on PL-1
SDZ ENS 163, thiolactone derivative of pilocarpine 513 *Mus.Rec.V*
secoverine, effects on GTP/GDP exchange 449 *Mus.Rec.V*
seizures, ICV norepinephrine in GEPR 1435
septal synaptosome, effects of ACTH-(1-24) on calmodulin release 1013

- serotonin, axon injury effect on somatostatinergic system in brain 803
serotonin, depletion after long-term treatment PL-187
serotonin, 5-HT₂ receptor regulation 313
serotonin, hyperglucagonemia induced by 1845
serotonin, level in blood and CSF in monkey 745
serotonin, TRP levels in streptozotocin-diabetes rats 907
serotonin edema, nitric oxide on PL-159
serotonin receptors, in chicken ileum 1361
serotonin receptors, in parents of autistic children 2005
serotonin turnover, and κ agonist-induced μ blocking effect 397
serotonin uptake, in parents of autistic children 2005
sertraline, blockade of biogenic amine uptake by 1023
serum, free and brain tryptophan, in streptozotocin-diabetic rats 907
serum free tryptophan, in streptozotocin-diabetic rats 907
serum glucose, and analgesia 53
sex hormone activity, and ascorbic acid 1493
sex-dependence, opioid role in growth hormone secretion 1443
sexual activity, decreases oxytocin receptor densities in the thymus 1781
site-directed mutagenesis, role of glycosylation and palmitoylation 429 *Mus.Rec.V*
smooth muscle, NK-1 antagonists define receptor subtypes 1141
smooth muscle cells, PTH and single cell contraction 793
sodium, cell, and membrane fluidity 1559
sodium, effects on receptor coupling 1889
sodium restricted diet, and caffeine 883
sodium transport, natriuretic factors in intracranial diseases 1875
soleus, cocaine effect on CK leakage 751
somatostatin, and GHRH in food deprivation 981
somatostatin, and 5-HT neurons 803
somatostatin, and PRL and GH secretion in neonatal rats 259
somatostatin, and substance P and swimming stress PL-169
somatostatin, nociceptive response in diabetic mice PL-31
somatostatin, on morphine induced levels of blood glucose, glucagon and insulin 141
somatostatin release, in acute stress 361
sphinganine, ALP activity in differentiation 2035
spin clearance, and aging 2027
spin labeling, and acetylcarnitine 297
spin-labeled tetracycline, transport across model and biological membranes 1071
spinal cord, delta opioid receptor subtypes 769
spinal cord, galanin and spinal norepinephrine PL-251
spinal cord, lack of antinociception by SP antagonist 353
spinal cord, steroidal effects and enzyme induction 677
spontaneously hypertensive rats, effect of erythropoietin in 1425
steroid hormone modulation, and β_2 -adrenoceptor 2083 *β -rec. Symp.*
steroid receptors, interaction in the dorsal horn of spinal cord 677
striatum, circadian rhythm of adenosine receptors 1677
stroke-prone spontaneously hypertensive rats (SHRSP), BQ-123 in 717
subarachnoid hemorrhage, endothelin antagonism in 825
subarachnoid hemorrhage, ET_A antagonist ameliorates vasospasm 1869
submucosal gland, muscarinic receptors in 521 *Mus.Rec.V*
substance P, and somatostatin PL-169

- substance P, lack of antinociception by 353
substance P, NK-1 antagonists define receptor subtypes 1141
substance P, NK-1 receptor, long-acting agonist PL-103
substance P, nociceptive response in diabetic mice PL-31
superovulation, in adult rats, treated with progesterone 61
T cells, age-related immunosuppression 1759
T cells, morphine-induced immunosuppression 1751
taurocholate, biliary excretion in congenitally jaundiced rats 777
temperature regulation, in anticholinesterase-treated rats 1343
teratogenicity, nitrous oxide effects on AdoMet and ODC 1669
testosterone, ANP and orchiectomy 205
testosterone, opioid role in sex-dependent GH secretion 1443
THC, and cerebral blood flow 757
thermal injury, and endothelins PL-291
thymic peptide, effect on vascular endothelium 1787
thymus, mating and oxytocin receptor densities in 1781
thyroid antagonists, in avian muscular dystrophy 1149
thyroid cells, oncogenes and signal transduction 891
tissue distribution, β -adrenoceptor subtypes on 1063
tissue plasminogen activator, arterial compliance and endothelial activity 1005
tolbutamide, inhibition of metabolism, hydroxylation assay 21
total parenteral nutrition, TPN-induced cholestasis after zone 3 hepatic damage 371
transforming growth factor- α , in effusions 1381
triacylglycerol metabolism, manganese effect on PC-12 cells 1567
tricyclic antidepressants, membrane effects of PL-7
tropicamide, effects on GTP/GDP exchange 449 *Mus.Rec.V*
tryptophan, serum free and brain 907
tumor cell lines, human, antitumor activity of vitamin K congeners 1797
tumor necrosis factor, cocaine and LP-BM5 on 1641
tumor necrosis factor, ethanol on 1319
tumor necrosis factor, inhibited by adenosine 1917
TxB₂ production, inhibition of antigen-induced PL-97
tyrosine hydroxylase, and preproenkephalin mRNA, quantitation of 1577
urinary bladder, vanilloid receptor in PL-221
urine, epidermal growth factor concentration 1217
uterine fluid, on lymphocyte activity 73
vagal stimulation, effect of bombesin 725
vanadium, in nutrition 339
vanilloid, receptor in urinary bladder PL-221
vapor therapy, in experimental pulmonary edema 171
vas deferens, rabbit, effect of presynaptic M₁ receptor stimulation 481 *Mus.Rec.V*
vascular permeability, and salmeterol 2131 β -rec. *Symp.*
vascular smooth muscle, and NO 1397
vasoactive intestinal peptide (VIP), effect on adrenal androstenedione release 135
vasodilation, effects of VA-045 on blood vessels PL-181
vasodilators, tissue selective PL-233
vasomotor control, and cocaine neurotoxicity 1387
vasopressin, dopamine receptors regulate secretion of 1301
vasopressin, effect on glutathione efflux 1217
vasorelaxation, ascorbate induced PL-37

- venlafaxine, blockade of biogenic amine uptake by 1023
- ventricular myocytes, PTH and single cell contractions 793
- verapamil, effect on acquisition of tolerance to ethanol 1295
- verapamil, modulates ryanodine-sensitive SR calcium release 1109
- VIP, helodermin, and small-cell lung cancer PL-267
- viral infection, and loss of M₂ receptor function 529 *Mus.Rec.V*
- vitamin K congeners, antitumor activity of 1797
- voltammetry, characterization of metabolites 1239
- Von Willebrand factor, arterial compliance and endothelial activity 1005
- WAL 2014, muscarinic effects of 473 *Mus.Rec.V*
- WIN 35,428, binding in rat brain PL-141
- withdrawal jumping, morphine, saline inhibition of 1129
- yohimbine, anxiogenic action of 639

SCOPE OF THE JOURNAL

LIFE SCIENCES is an international weekly journal publishing full length reports on research in a range of areas in the life sciences. These areas include molecular and cellular aspects of:

- Cardiovascular & Autonomic Mechanisms
- Endocrinology
- Immunology
- Toxicology
- Drug Metabolism
- Growth Factors & Neoplasia
- Neuroscience

The journal publishes original research rapidly. Although full-length manuscripts are favored, exciting new results requiring rapid dissemination in shorter form will also be considered. These shorter submissions may be considered for either LIFE SCIENCES or for the ultra-rapid communications section *Pharmacology Letters*.

The journal favors publication of papers on seminal areas of science utilizing modern scientific technologies and exploring molecular and/or cellular mechanisms involved in explaining reported observations. Recommendations from the Declaration of Helsinki or NIH guidelines for care and use of laboratory animals must be adhered to. All communications will be rigorously reviewed. Submitted reports will be processed by a section editor, who will administer manuscripts in one of the seven science areas listed above.

INSTRUCTIONS TO AUTHORS

LIFE SCIENCES and *Pharmacology Letters* Section

Contributions are reviewed and accepted on the basis of their scientific merit and the need for rapid publication. Contained in the journal:

- New scientific information
- Minireviews on selected aspects of a scientific field undergoing rapid change
- Brief conceptual papers based on original and/or literature data
- Relevant clinical discoveries
- Collections of selected papers on current concepts in a particular fields
- Symposium papers

SUBMISSIONS: Submit an original and two copies of the manuscript. Sign "Waiver of signature" on express mail packages. Submissions sent by facsimile will not be considered. Original manuscripts will not be returned in order to reduce mailing costs.

SECTION HEADING SELECTION: At the top right of each manuscript, in pen or pencil, indicate under which section heading the manuscript should be considered: Cardiovascular and Autonomic Mechanisms; Drug Metabolism; Endocrinology; Neuroscience; Toxicology; Growth Factors and Neoplasia; Immunology. *Pharmacology Letters* articles will be considered separately and must conform to the instructions for these submissions printed below.

SUGGESTED REFEREES: To expedite the review process, authors should submit names of four qualified reviewers for their work, including addresses and, if possible, facsimile numbers. Each reviewer should be an expert in the field of the manuscript. It is not necessary to choose referees from the Editorial Advisory Board unless those individuals are familiar with the topic of the submitted article.

PHARMACOLOGY LETTERS is a section providing for the rapid review and publication in English of original research involving rigorous experimental studies of immediate interest on any aspect of basic pharmacology. Clinical studies will be included if they have a direct bearing on the mechanism of drug action. Also invited are commentaries, new methodologies and manuscripts on pharmacologic theory (either conceptual or mathematical). Articles in the Section should be 4 to 6 pages in length with a maximum figure-plus-table combination of 4. It is recommended that no more than 20 references be included in any paper.

TYPING INSTRUCTIONS: The following detailed instructions are necessary to allow direct reproduction of the manuscript for rapid publishing. *If instructions are not followed, the manuscript will be returned for retyping.* To enhance the presentation of the Journal, we encourage you to work with us to achieve a pleasing uniformity of typeface and layout; however, it is not our intention to place restrictions on authors who do not have access to state-of-the-art printing capabilities. The following typefaces, in 12 point size, are preferred: Times Roman, Helvetica, Courier. Table and figure legends should be easily discernible from the text. Small italic typefaces are unsuitable. It is imperative that manuscripts are typed with a black carbon ribbon, or ink-jet or laser printer; this insures a superior quality reproduction in the photo-offset process. Dot matrix print is not acceptable. No erasure marks, smudges, spots, pencil or ink corrections or creases are allowed.

FORMAT FOR PHARMACOLOGY LETTERS SECTION: Observe "General Format" and "Title" on these Instructions. Following the author paragraph, *quadruple space*, then type a black line across the entire width of text. On the first line below the black line, at left margin, type: Abstract. Continue on the same line with a statement summarizing the important points of the text. The abstract paragraph should extend across the entire width of text. Under the abstract, type another black line across the width of text. *Double-space* below the black line, and type Introduction (underlined and centered over text). Continue with Instructions beginning with "Major Headings".

GENERAL FORMAT: Paper size should be 8 1/2" (216mm) by 11" (279mm) and the typing area must be exactly 6 5/8" (168mm) wide by 9 7/8" (250mm) long. Justify margins left and right (block format). The entire typing area of each page must be filled, leaving no wasted space. Text should be *single-spaced* on good quality white bond paper, and *double-spaced* between paragraphs. Special care should be taken to insure that symbols, superscripts and subscripts are legible and do not overlap onto lines above or below. Make sure text lines are equidistant.

TITLE: On first page of manuscript, start title 1" (25mm) down from top text margin. Type title in all capital letters, centered on the width of the typing area and single-spaced if more than one line is required. The title should be brief, descriptive and have all words spelled out. *Double-space*, then type the author(s) name(s), single-spaced if more than one line is required. *Double-space*, then type author(s) address(es), also single-spaced, capitalizing the first letter of main words. *Quadruple-space* before Summary (LIFE SCIENCES) or Abstract (*Pharmacology Letters*).

SUMMARY: (for LIFE SCIENCES) Center, type and underline summary heading, capitalizing the first letter. A *double-space* should separate the heading from the summary text. Indent approximately 1/2" (13mm) from both left and right margins for typing the summary. The summary should be intelligible to the reader without reference to the body of the paper and be suitable for reproduction by abstracting services. Introduction to the text (without a heading) should begin two spaces below the summary using full margins.

MAJOR HEADINGS: Headings throughout the paper should be arranged to increase clarity. Major headings, are Methods, Results, Discussion, Acknowledgments and References. Capitalize first letter, underline, and center headings on width of typing area. Other headings should be arranged to indicate their relative importance.

SYMBOLS AND FORMULAE: This material should be typed.

TABLES: Tables should be typed within the main body of the manuscript, but set apart, to avoid confusion with the text. The word TABLE, all letters capitalized, should be centered with table number (Roman numerals) above the table. Insert caption above the table, capitalizing the first letters of all main words. Place legend beneath the table. A single table must not overlap onto the following page.

FIGURES: Glossy prints or laserprinted originals are acceptable. Incorporate figures into main body of text using as little space as possible without hindering legibility after a 25% reduction in the printing process. Figures should be identified in pencil on the reverse side. Place in a protective envelope and attach to the manuscript with a paper clip. Center the abbreviation "Fig." with figure number (Arabic numerals) beneath the figure and above the legend. Indent the legend on both sides to distinguish from text.

HALF-TONES (PHOTOGRAPHS): Photographs must be in black and white. A clear print, large enough to be legible after 25% reduction, is required.

FOOTNOTES: These should be typed single-spaced at the bottom of the appropriate page and separated from the text by at least a double-space and a short line immediately above.

REFERENCES: Consecutive numbers in parentheses should be used to indicate the references in the text, e.g. (1,2). The full reference should be cited at the end of the manuscript. *Single-space* between as well as within references. References should contain names of all authors in CAPITAL letters (initials typed first, surnames following), title of journal (abbreviated, if possible, in accordance with *Periodical Title Abbreviations*), volume number (underlined), first and last page numbers of article and year of publication (in parentheses) as illustrated below. References to books should contain author(s) names, in same format as above, title (underlined and first letter of main words capitalized), editor(s) names, if any, page number(s), publisher's name and location and year of publication (in parentheses). The phrase, "submitted for publication," is not considered a reference and should be placed in parentheses at the appropriate place in the text.

1. A.B. NORMAN, G. BATTAGLIA, A.L. MORROW and I. CREESE, *Eur. J. Pharmacol.* 106 461-462 (1985).
2. I. CREESE, *Neurotransmitter Receptor Binding*, H.I. Yamamura, S.J. Enna, and M.J. Kuhar (Eds), 189-233, Raven Press, New York (1985).

RUNNING TITLE: A running title of not more than 40 spaces should be provided on a separate sheet.

KEY WORDS: One or more key words must be provided by authors for indexing of their article. Key words should be followed by enough explanatory information to make them useful to readers in a subject index, published at the end of every volume. Abbreviated forms of chemical compounds are not acceptable. Spell out entirely, using the official nomenclature

Example: cannabidiol, effect on testicular esterase
L-dihydroxyphenylalanine (L-DOPA), effect on protein synthesis

PAGINATION: Number each page in light blue pencil in lower right-hand corner.

CORRESPONDING AUTHOR: Place at bottom of first page, under a short black line. Extend name and address across entire width of page.

FURTHER INFORMATION: The information to contributors, especially nomenclature and abbreviations, contained in the Proceedings of the National Academy of Sciences may be used as a guide for preparation of manuscripts for any points not covered above.

COPYRIGHT AGREEMENTS: Since the enactment of U.S. Copyright laws on January 1, 1978, a Transfer of Copyright Agreement is required by the publisher to accompany every article accepted for publication. Upon acceptance for publication, the corresponding author of each manuscript will be sent an agreement to be completed prior to preparation for publication.

MAILING OF COMMUNICATIONS: Contributors should submit manuscripts to:

LIFE SCIENCES c/o Pergamon Press
655 N. Alvernon Way, Suite 212
Tucson AZ 85711, USA
Phone: (602) 321-7778 FAX: (602) 321-7781

PHARMACOLOGY LETTERS c/o Pergamon Press
655 N. Alvernon Way, Suite 212
Tucson AZ 85711, USA
Phone: (602) 321-7778 FAX: (602) 321-7781

LIFE SCIENCES c/o Dr. S.Z. Langer
Synthelabo Recherche (L.E.R.S.)
B.P. 110-31 avenue Paul Vaillant Couturier
92225 Bagneux Cedex, FRANCE
Phone: 45 36 24 11 FAX: 45 36 20 12 Telex: 634818

• *Call For Papers!* •

CELLULAR AND MOLECULAR BIOLOGY RESEARCH

(Incorporating Cellular and Molecular Biology)

Editor-in-Chief: **M.A.Q. SIDDIQUI**, State University of New York Health Science Center at Brooklyn, New York, USA

EDITORIAL BOARD

Editor-in-Chief: **M.A.Q. Siddiqui**
State University of New York Health
Science Center at Brooklyn, NY, USA

EXECUTIVE EDITORIAL BOARD

D. Alkon, National Institutes of Health,
MD, USA

R. Furchgott, SUNY Health Science
Center at Brooklyn, NY, USA

A. Skalka, Fox Chase Cancer Center,
PA, USA

S. Udenfriend, Roche Institute of
Molecular Biology, NJ, USA

EDITORIAL BOARD

K. Ahmed, University of Minnesota &
VA Medical Center, MN, USA

H. Arnold, Institut Fur Biochemie Und
Biotechnologie, Konstantin, Germany

A.K. Banerjee, Cleveland Clinic
Foundation, OH, USA

A. Datta, Jawaharlal Nehru University,
New Delhi, India

J. Ellinger, New York Medical College,
NY, USA

D. Farb, Boston University, MA, USA

Y. Furutachi, Nippon Roche Research
Center, Kanadawa, Japan

L. J. Gudas, Cornell University Medical
College, NY, USA

P. Gunning, Children's Medical Research
Institute, Wentworthville, N.S.W., Australia

H.-F. Kung, National Cancer Institute,
MD, USA

E. Olson, M.D. Anderson Cancer Center,
TX, USA

M. Olson, University of Mississippi
Medical Center, MS, USA

N. Sonenberg, McGill University,
Quebec, Canada

R. Wong, SUNY Health Science Center at
Brooklyn, NY, USA

AIMS AND SCOPE

CELLULAR AND MOLECULAR BIOLOGY RESEARCH (Incorporating Cellular and Molecular Biology)

publishes original articles emphasizing the wide range of topics concerned with cellular and molecular mechanisms involved in cell growth, development and differentiation. Among those areas of coverage are *in vitro* and *in vivo* studies of structure and function of biologically important macromolecules in eukaryotic organisms, gene regulatory mechanisms, transcription, structure and function of regulatory factors, carcinogenesis, oncogenes and tumor suppressor genes in growth and differentiation, signal transduction mechanisms, structure and function of cell organelles, control of growth and development, cell-cell interaction, embryogenesis, and structure and function of viruses and bacteriophages. Papers with emphasis on recombinant DNA technology, transgenes, and genetic manipulation of cells and organs will be of special interest.

SUBSCRIPTION INFORMATION

Sterling prices quoted are definitive and apply worldwide. US dollar prices are quoted for convenience only and are subject to exchange rate fluctuation. Prices include postage and insurance.

00591 **CELLULAR AND MOLECULAR
BIOLOGY RESEARCH (Incorporating
Cellular and Molecular Biology)**

ISSN: 0968-8773

8 Issues per annum

Annual Institution Rate (1993)

*£ 345.00/US \$552.00

Volume 39, 1993

CALL FOR PAPERS

The Journal considers full-length, original articles, short communications, summary articles, techniques papers, and commentaries. The Commentary section is intended to stimulate thought and dialogue on controversial issues of interest to the readership of **CELLULAR AND MOLECULAR BIOLOGY RESEARCH**. Commentaries may also draw attention to unresolved or controversial topics in which there is a need for additional research, or state an opinion on the direction in which a given area of research is moving.

The Editorial Board of **CELLULAR AND MOLECULAR BIOLOGY RESEARCH** is committed to objective peer review and rapid publication. Manuscripts are published in the shortest time possible commensurate with high scientific quality. Complete guidelines for electronic submission and manuscript preparation are available from:

Dr. M.A.Q. Siddiqui
**CELLULAR AND MOLECULAR
BIOLOGY RESEARCH**

Department of Anatomy and Cell Biology,
State University of New York Health
Science Center at Brooklyn, 450 Clarkson
Avenue - Box 5, Brooklyn, New York
11203 USA.

Telephone: (718) 270-1014

Fax: (718) 270-3732

**FREE SAMPLE COPY
AVAILABLE UPON
REQUEST!**



PERGAMON PRESS New York • Oxford • Seoul • Tokyo
A member of the Elsevier Science Publishing Group

US: 660 White Plains Road, Tarrytown, NY 10591-5153

UK: Headington Hill Hall, Oxford OX3 0BW, England

ORDER CARD

LIFE SCIENCES

PUBLISHED
WEEKLY
280

Please ask your library to order or mail this card to:

Journals Department
PERGAMON PRESS INC.
660 White Plains Road,
Tarrytown, New York 10591-5153, USA

Journals Department
PERGAMON PRESS LTD.
Headington Hill Hall
Oxford OX3 0BW, ENGLAND

Enter my subscription as checked below:

If using credit card for payment please include credit card
billing address below.

- ☐ Annual Subscription (1993) *£1218.00/US \$1949.00
- ☐ Reduced rate for individuals whose institution
subscribes at regular rate (1993) *£175.00/US \$280.00

Name: _____

Address: _____

☐ Payment enclosed. Amount: _____

Zip code: _____

☐ Bill me at address to right.

Signed: _____ Date: _____

☐ Charge to Master Card/Visa/Access/Eurocard

FREE SAMPLE COPIES available upon request

☐ Charge to American Express

BACK ISSUES:

Information on prices and hard copy back issues upon request.

*Pound sterling price quoted is definitive. US dollar price is quoted
for convenience only.

Prices include surface postage and insurance.

Card valid until: _____

ORDER CARD

LIFE SCIENCES

PUBLISHED
WEEKLY
280

Please ask your library to order or mail this card to:

Journals Department
PERGAMON PRESS INC.
660 White Plains Road,
Tarrytown, New York 10591-5153, USA

Journals Department
PERGAMON PRESS LTD.
Headington Hill Hall
Oxford OX3 0BW, ENGLAND

Enter my subscription as checked below:

If using credit card for payment please include credit card
billing address below.

- ☐ Annual Subscription (1993) *£1218.00/US \$1949.00
- ☐ Reduced rate for individuals whose institution
subscribes at regular rate (1993) *£175.00/US \$280.00

Name: _____

Address: _____

☐ Payment enclosed. Amount: _____

Zip code: _____

☐ Bill me at address to right.

Signed: _____ Date: _____

☐ Charge to Master Card/Visa/Access/Eurocard

FREE SAMPLE COPIES available upon request

☐ Charge to American Express

BACK ISSUES:

Information on prices and hard copy back issues upon request.

*Pound sterling price quoted is definitive. US dollar price is quoted
for convenience only.

Prices include surface postage and insurance.

Card valid until: _____

**Reproduced with the permission of Pergamon Press Inc., by University
Microfilms Inc. Duplication or resale without permission is prohibited.**

